VOLUME LIV NUMBER ONE

THE NATIONAL GEOGRAPHIC MAGAZINE

JULY, 1928

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By N. C. WYETH

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WASHINGTON, D.C.

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

TO carry out the purposes for which it was founded forty years ago the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings and whose customs, ceremonies, and name have been engulfed in an oblivion.

TO further the important study of solar radiation in relation to long-range weather forecastings, The Society has appropriated $60,000 to enable the Smithsonian Institution to establish a station for four years on Mt. Brukkaros, in Southwest Africa.

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BEYOND UNCHARTED SEAS COL

Into the setting sun, conquering tempest, mutiny and terrors of
give civilization a new hemispher

OLUMBUS FINDS A NEW WORLD

s of the unknown, the Great Admiral steers his tiny caravels to here—and gain fame everlasting.

ONE OF A SERIES OF FIVE MURALS BY N. C. WYETH
NATIONAL GEOGRAPHIC SOCIETY BUILDINGS
WASHINGTON

Are you a "One Watch" man?

There's a world of sense in the two-watch idea—

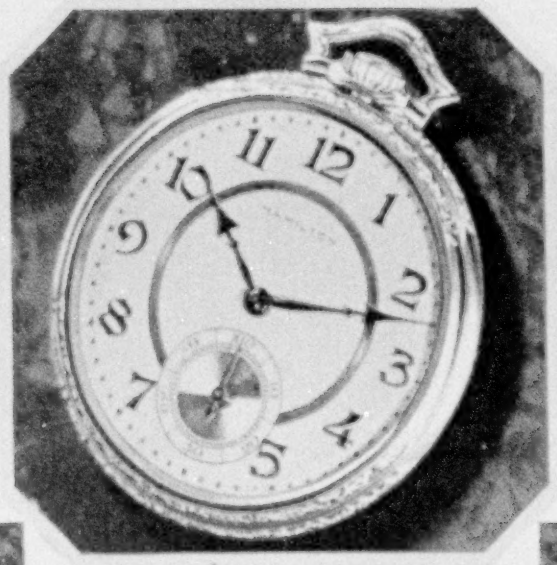
A POCKET WATCH · · · AND A STRAP

DO you open your top-coat to the driving spring rain, fumble with your gloves, and dive into the dark recesses of your vest to see what time it is?

At the wheel of your car do you go through a stretch of one-armed driving when you want to peek at your pocket watch? On the golf links do you find yourself stranded without the exact time of day about you? Then this page is addressed to you. For there are few more sensible conveniences than this modern idea of a man owning two watches. Carry a fine Hamilton in your pocket for the innumerable moments during the day when the dignity of the situation demands the railroad accuracy of a pocket Hamilton. But own, in addition, a Hamilton Strap Watch for the hundred-and-one occasions during the day when the time must be read from your wrist.

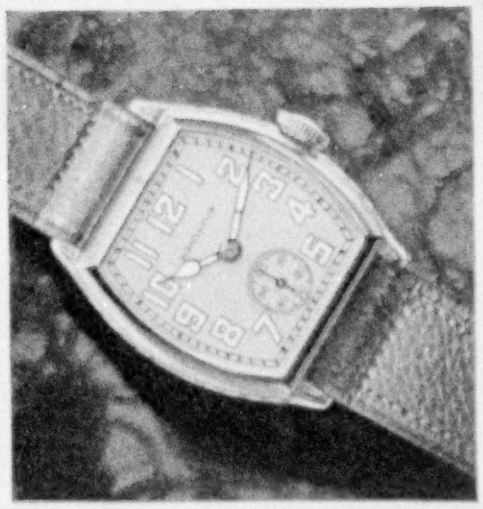
There are two beautiful Hamilton Strap Watches shown here. Possibly the beauty of the cases, the artistry of their designs, caught your eye. What you cannot see, however, is that each of these watches is a member of the same Hamilton family whose reputation for unflagging accuracy has earned for it the title "the watch of railroad accuracy."

If you would like to read the interesting story of accurate watchmaking, send for "The Timekeeper." Hamilton Watch Company, 882 Columbia Avenue, Lancaster, Pa.

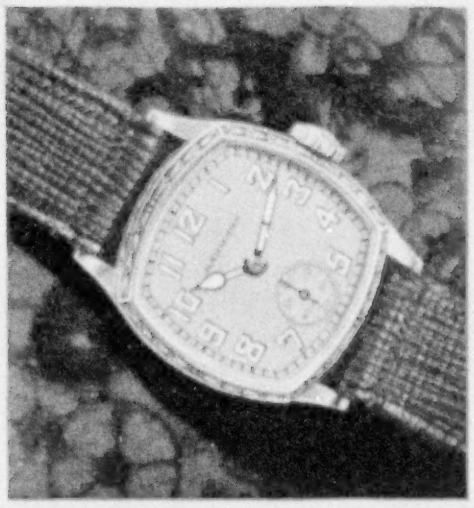


Below. The BARREL. Smart in simple appeal to the eye; sturdy and accurate on the wrist. This Hamilton Strap comes in filled or 14k green or white gold, plain or engraved cases, $55 to $87.

Below. The CUSHION. Beautifully proportioned in line, with a welcome yet simple richness in appearance. In filled or 14k green or white gold, plain or engraved, from $50 to $77.



The BRUNSWICK. Designed for the man who likes a reasonable degree of richness in the engraving of his watch. In 14k green or white gold engraved, with dial shown, $112 to $172. Other beautiful Hamiltons, $48 up.



Hamilton *THE WATCH of Railroad Accuracy*

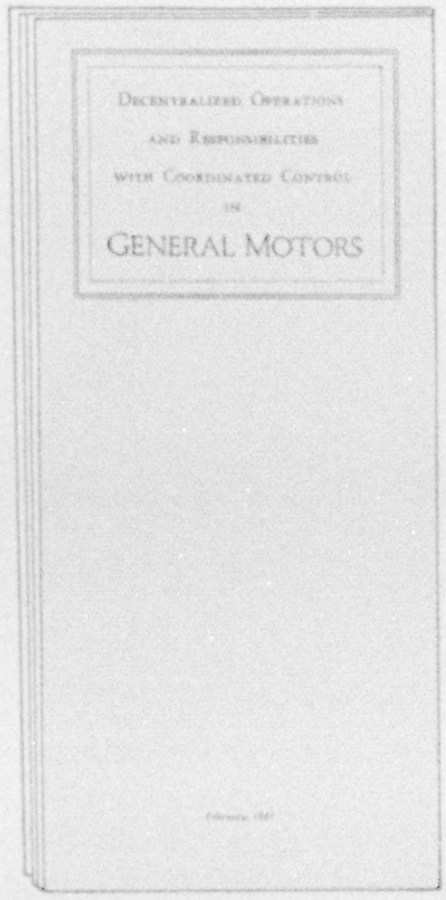
DECENTRALIZED OPERATIONS *and* RESPONSIBILITIES *with* COORDINATED CONTROL *in* GENERAL MOTORS

THE manufacturing divisions of General Motors, from the standpoint of administrative management, are self-contained organizations, each with a general manager responsible over all its functional activities, such as engineering, purchasing, production and sales; and including financial control.

Yet there must be a sound measure of centralized control over the manufacturing divisions to assure the proper coordination of activities and to capitalize the advantages derived from the size and importance of the institution in the industrial world.

How General Motors secures the decentralization of operations and responsibilities with coordinated control is set forth in the booklet shown on this page.

In addition to its Annual Report and Quarterly Statement of Earnings, General Motors issues special booklets, from time to time, for the information of its stockholders, employees, dealers and the public generally. Many of the principles and policies outlined in these booklets are applicable to other businesses.



A copy of this booklet, DECENTRALIZED OPERATIONS AND RESPONSIBILITIES WITH COORDINATED CONTROL, together with the series of booklets to stockholders, will be mailed free upon request to Department M-4, General Motors Corporation, Broadway at 57th Street, New York, N. Y.

GENERAL MOTORS

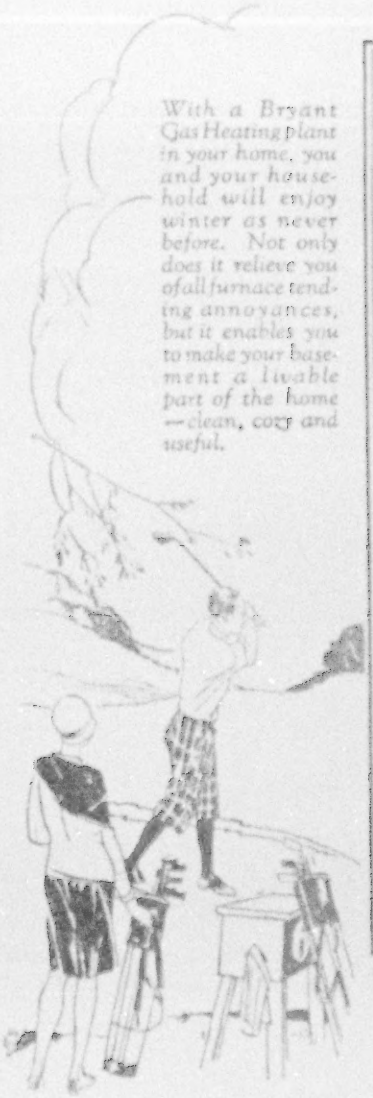
"A car for every purse and purpose"

CHEVROLET , PONTIAC , OLDSMOBILE , OAKLAND
BUICK , LaSALLE , CADILLAC , *All with Body by Fisher*
GENERAL MOTORS TRUCKS , YELLOW CABS and COACHES

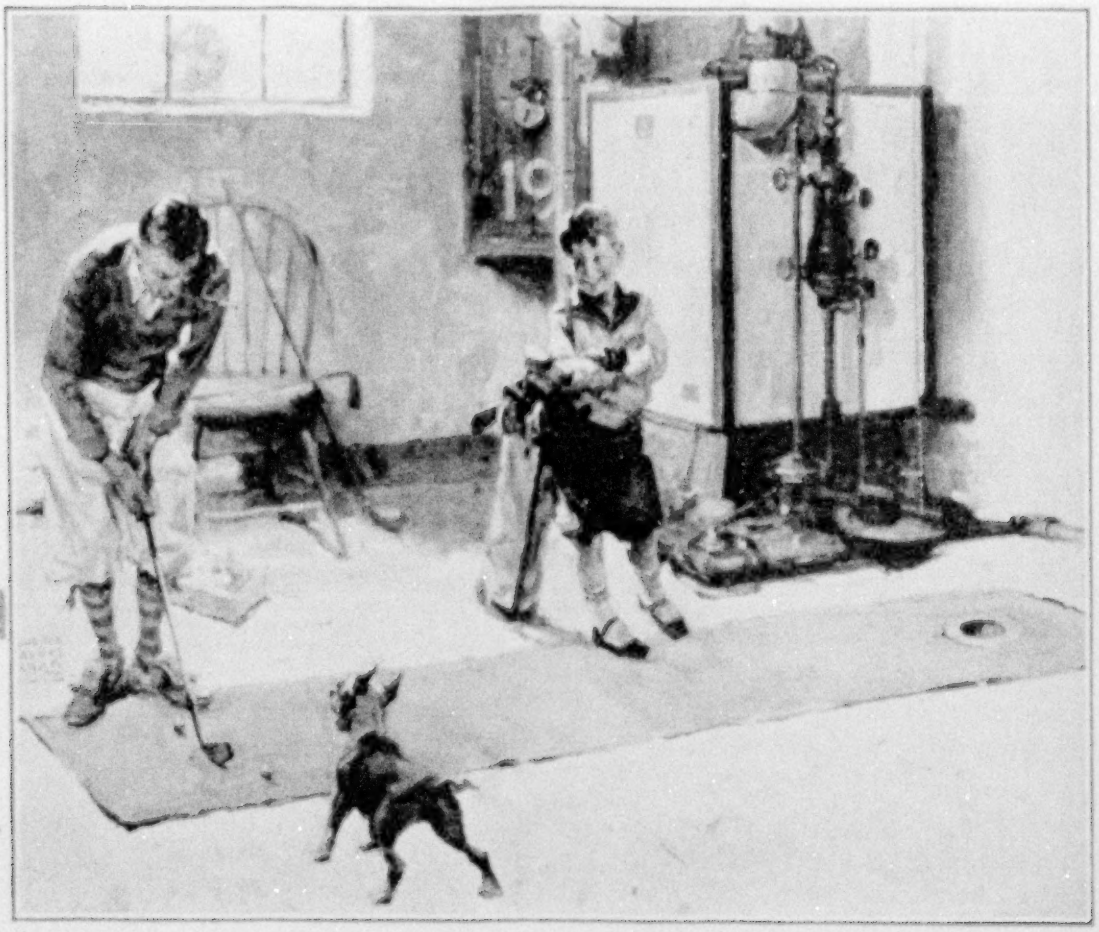
FRIGIDAIRE—The Automatic Refrigerator *DELCO-LIGHT—Electric Plants*

Winter is as Carefree as Summer

where "the Pup is Furnace Man"



With a Bryant Gas Heating plant in your home, you and your household will enjoy winter as never before. Not only does it relieve you of all furnace tending annoyances, but it enables you to make your basement a livable part of the home—clean, cozy and useful.



A SINGLE match is the year's kindling. Eight months out of every year—from the first chilly evenings of fall, through winter's biting cold up to the last days of temperamental spring, the only heating effort required is the winding of an 8-day clock. No wonder the Bryant Gas Heated home is the envy of the neighborhood!

Regardless of the weather outside, the temperature within stays constant, automatically maintained within a single thermometer-measured degree of the day and night temperatures you select. Trips to the furnace are timed by the calendar, not by the clock.

Clean, carefree, dependable—Bryant Automatic Gas Heating brings winter home-life new delights.

The cost of this luxurious home convenience is less, probably, than you would think such sheer comfort would demand. Moderately priced gas, and the special house heating rates granted by many gas companies bring the cost of this modern convenience well within the means of most home-owners. Don't make a mistaken guess as to its cost—let us arrange to give you a dependable estimate for *your* house, both installation and operation. There will not be the slightest obligation on your part for this service.

BRYANT GAS HEATING

© BHMC

THE BRYANT HEATER & MFG. COMPANY
17905 St. Clair Avenue CLEVELAND, OHIO

LINCOLN

Seven-Passenger Sport Touring—by Locke

Long, low and graceful in every line and curve, beautifully expressive of great power and inexhaustible speed . . . A motor as quiet and vibrationless as it is possible to make a superb piece of power machinery . . . Complete safety and effortless control even at the highest speeds . . . Equipment and appointments as fine as the quality-markets of the world affords . . . Spacious room for seven —even for the two passengers in the auxiliary seats. Restful touring comfort even across a continent. These are definite Lincoln qualities that make this a master-car among all fine open cars!

Aluminum body custom-designed by Locke—upholstered in soft, hand crushed Morocco in color to blend with the finish—a sport top of finest Burbank cloth with mahogany finished bows, nickel trimmed, compactly folding. Unlimited selection of color combinations. Six wire wheels—spares at the side or rear. Folding trunk rack.

Prices range from $4600 to $7300, completely equipped, at Detroit

LINCOLN MOTOR COMPANY

Division of Ford Motor Company

A SMALLER, SMARTER . . . AND HUSKIER . . . *ELGIN*

THE *NEW* ELGIN *Legionnaire*

$19.00 *to* $27.50

THE LEGIONNAIRE volunteers . . . for active service.

Ready to do 36 holes of golf with you and never miss a tick. Ready to take the shock of a muskie's strike . . . and like it. But so smart and modern in design it correctly companions your white starched cuff when you're in dinner clothes.

Hardly larger than a quarter, this new ELGIN. All the bulk stripped away. Slender, compact, sinewy as a fast roadster or a fighting plane.

And like a four-piece golf suit, it doubles admirably in business and sports. In camp or conference, drawing room or trout stream, your LEGIONNAIRE blends with its background like the gentleman's watch that it is.

* * *

RAISED numerals flash the time cleanly and clearly . . . in darkness, too, if you wish the luminous dial. And if you do forget to wind it you'll still make your train . . . it runs 40 to 42 hours. Four models to choose from at $19 to $27.50. ELGIN efficiency and great volume of business have brought these remarkable prices.

Model 303. Cased by Elgin in chromium plated nickel. Will not tarnish or discolor. Handsomely engraved. With raised figured dial, $19.00. Luminous hands and dot dial $20.00
With luminous dial and hands $21.50

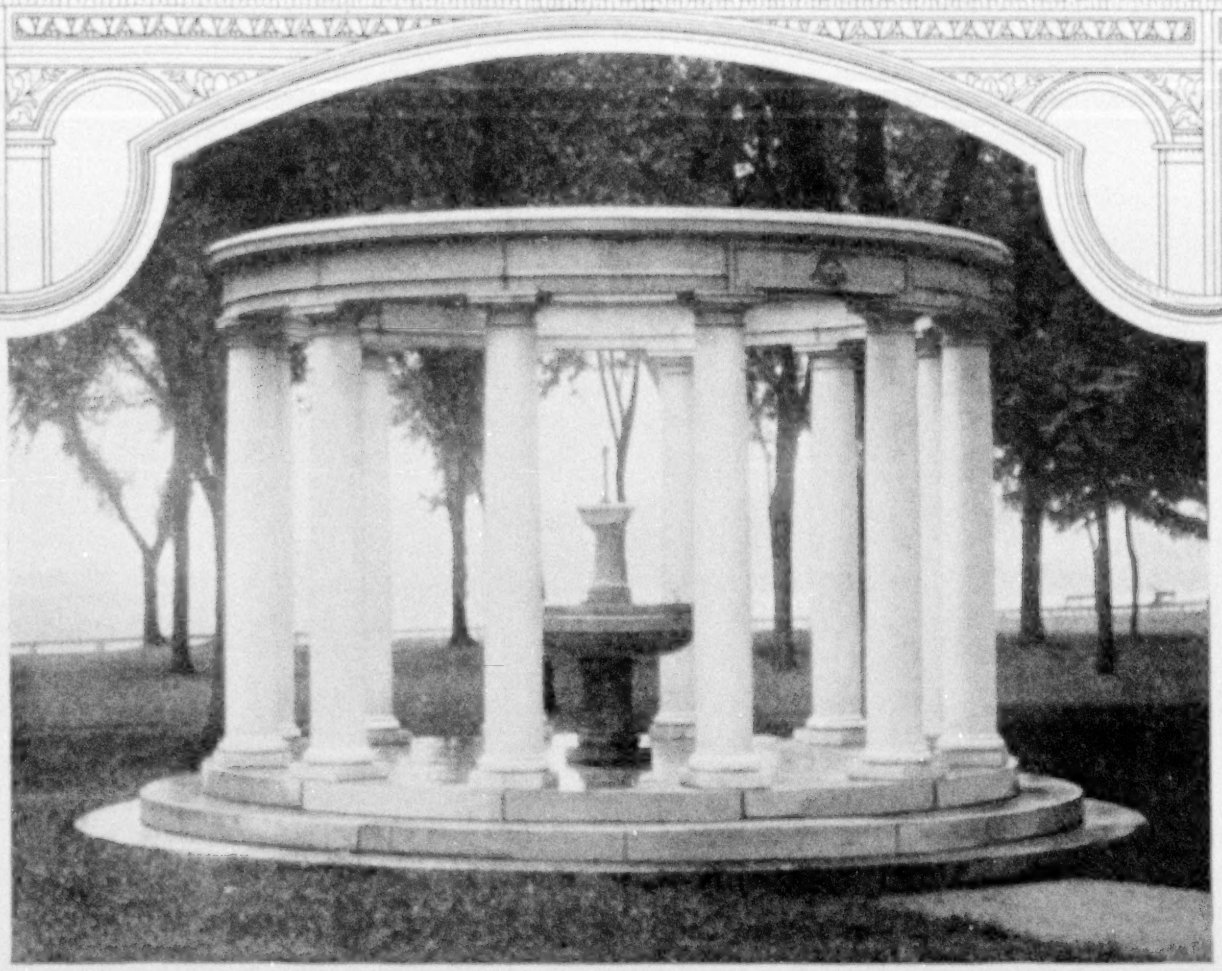
Model 302. Cased by Elgin in chromium plated nickel. Handsomely engraved. Extra heavy crystal. With luminous dial and hands, $21.50. With luminous hands and dot dial $20.00
With raised figured dial $19.00

Model 301. White or green gold-filled case that carries full guarantee of the Elgin National Watch Company. With raised figured dial, $25.00. With luminous hands and dot dial $26.00
With luminous dial and hands $27.50

Model 300. White or green gold-filled case that carries full guarantee of the Elgin National Watch Company. With luminous dial and hands, $27.50. With luminous hands and dot dial . . . $26.00
With raised figured dial $25.00

© Elgin, 1928

[*Prices slightly higher in Canada*]



KERR FOUNTAIN
GALLIPOLIS, OHIO

A TEMPLE AMID THE TREES

WHAT could make a more lovely beauty-spot than this graceful fountain, in perfect harmony with its sylvan setting, forming a picture of such quiet beauty as those painted by old masters?

The gift of a public-spirited citizen to his native city, this fountain of Georgia Marble will in after years be a *memorial to its donor*—a memorial not somber, but beauteous and pleasure-giving to generations to come.

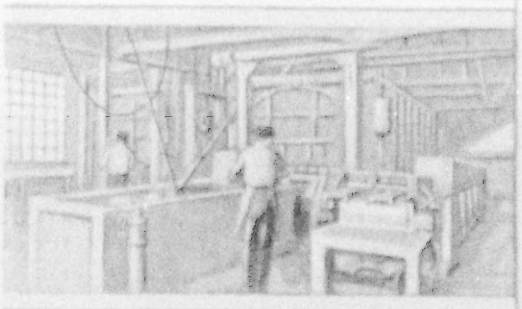
For memorials of any type, Georgia Marble is the perfect selection, because it has all the desirable attributes—*beauty, strength,* and, above all, *permanence,* without which beauty is of no avail.

Write for the memorial booklet — "That Memory May Live Forever"

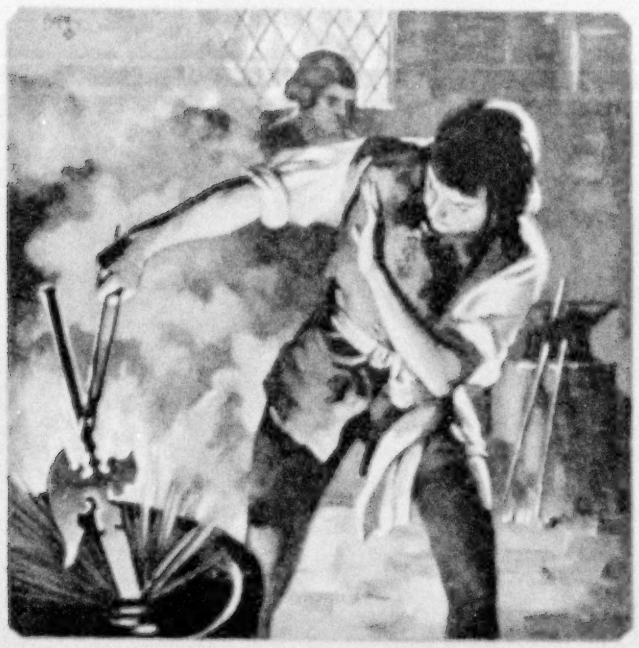
THE GEORGIA MARBLE COMPANY
Tate, Georgia

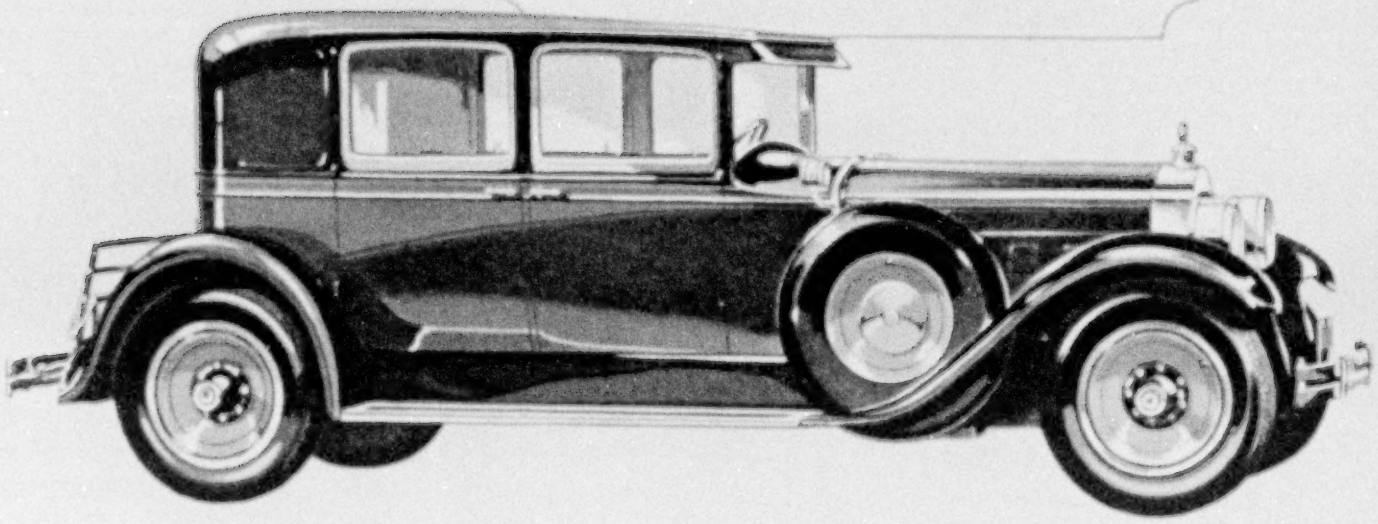
CHICAGO	ATLANTA	NEW YORK
456 Monadnock Building	Bona Allen Building	1328 Broadway

GEORGIA · MARBLE



The methods used in heat treating metals in the early days of automobile manufacture were still those of the Dark Ages





PACKARD has made the heat treating of parts—annealing, tempering or hardening to fit them for their special functions—an exact and charted science.

Before Packard began its pioneering research, heat treating, as a process distinct from forging, was almost unknown. For centuries smiths had tempered steel while forging it—gauging heat by the color of the glowing metal and quenching their handiwork in a cooling bath of oil or water.

Today, the modern Packard furnaces are regulated by the most sensitive of pyrometers—quenching baths are prescribed by accurate and recorded formulas. Specific reactions and unvarying results are known in advance—the quality standards of Packard parts have been made certain.

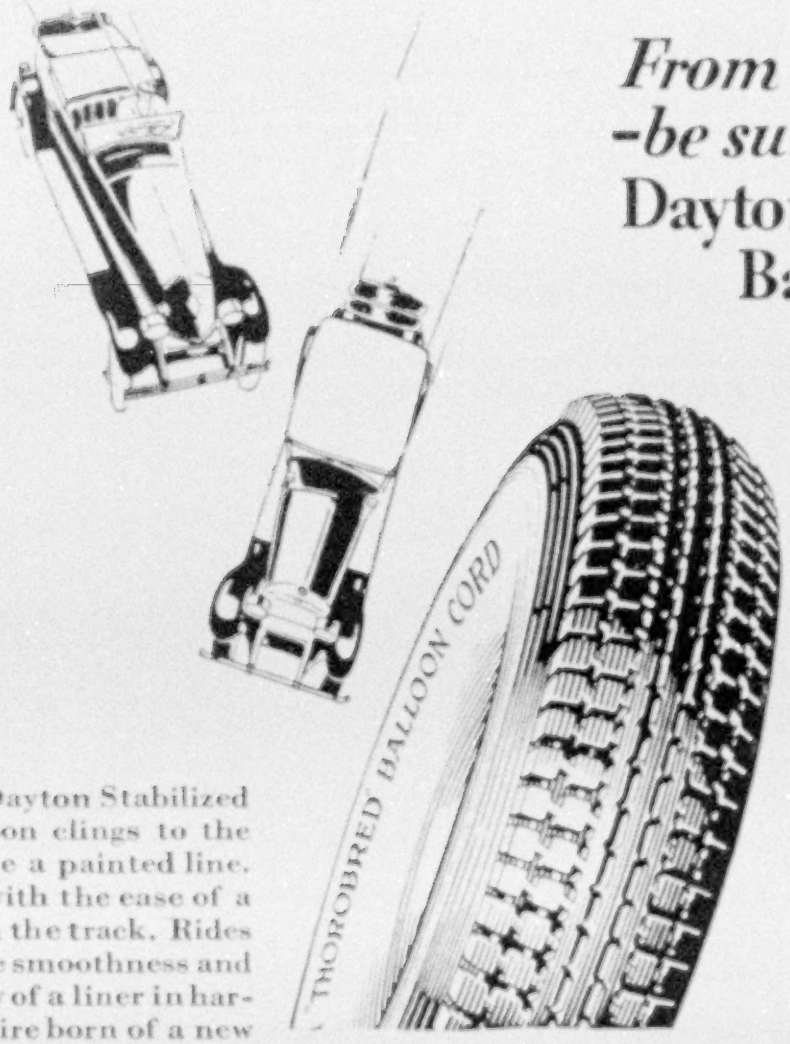
The Packard car is a tribute to the metallurgical and manufacturing, as well as the engineering progress in which Packard has led. It has well earned its acknowledged leadership in quality, performance and long life.

Packard cars are priced from $2275 to $4550. Individual custom models from $3875 to $8725, at Detroit

PACKARD

ASK THE MAN WHO OWNS ONE

at speeds where life *depends* on tires



From Zero to "80"
–be sure, be SAFE on
Dayton Stabilized
Balloons

STABILIZED—to stand the terrific strains and speeds of modern motoring

THE Dayton Stabilized Balloon clings to the road like a painted line. Steers with the ease of a train on the track. Rides with the smoothness and stability of a liner in harbor. A tire born of a new principle in design and construction.

A tire with more than an ample reserve of rugged strength. Strength to withstand the terrific strain of scorching speed. Flexibility to absorb the drubbing shocks of ruts and bumps. Sturdiness to resist the wear and tear of sudden starts and stops. The new tire for the new day.

Dayton Stabilized Balloons offer quality far above the established order. Quality that was never intended to compete with price . . . never sacrificed to mass production. Quality that can't be had in ordinary tires.

Before you buy, consider the terrific strain to which the tire of today is put. Consider the dangers that lurk in weak rubber and weak fabric. Demand the protection that Dayton Stabilized Balloons offer you, your passengers, and your car. Equip with them today.

THE DAYTON RUBBER MFG. CO.
Dayton, Ohio

Dayton STABILIZED BALLOONS

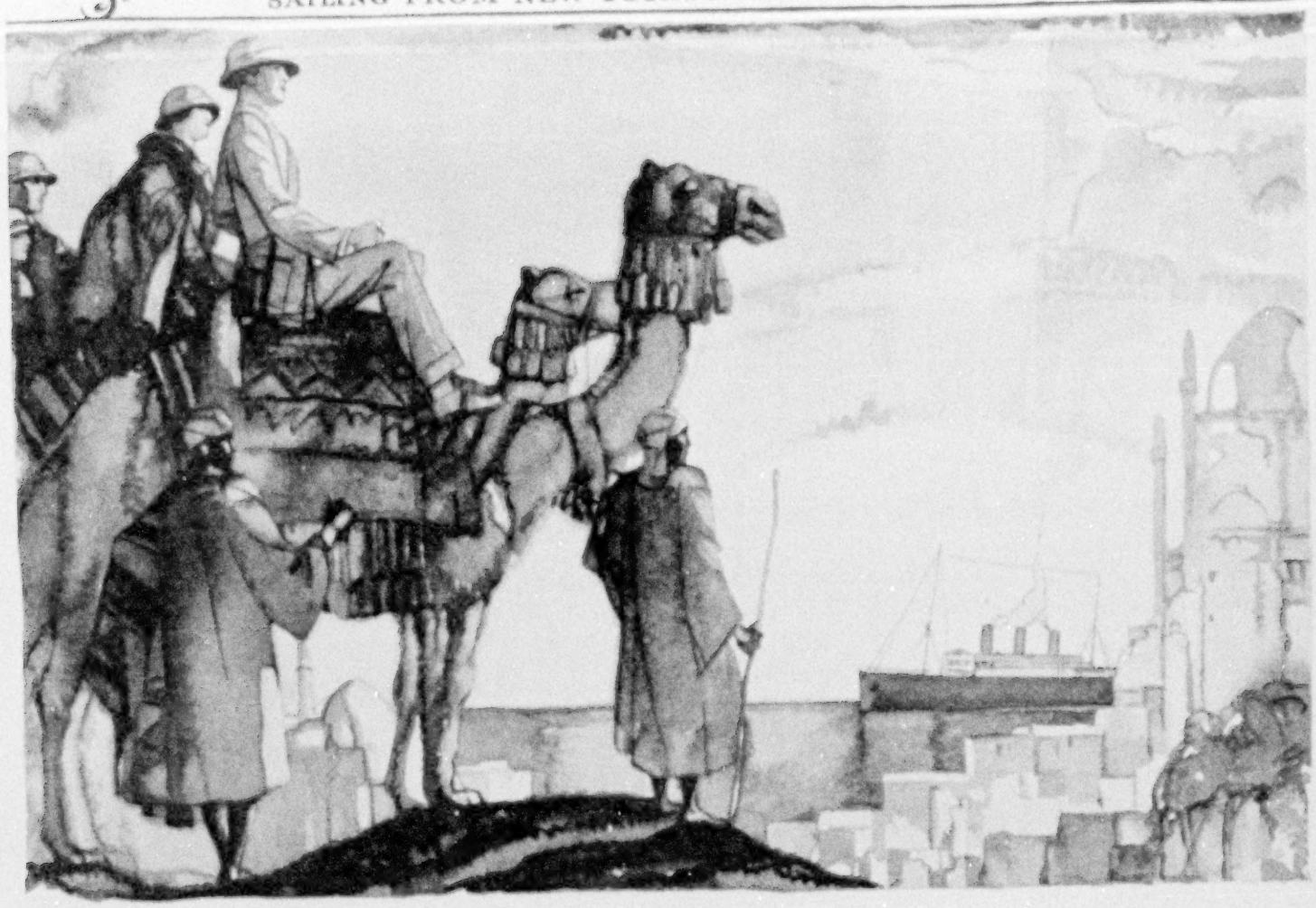
Makers of Dayton Thorobred Extra-ply Cords for large diameter wheels, the pioneer low air pressure tires of America. Also makers of famous Dayton Maximaire Fan Belts, chosen by 85% of America's automobile and truck manufacturers as original equipment.

Dayton Thorobred Tubes—famous companions to Dayton Tires

ROUND THE

World Cruise

SAILING FROM NEW YORK NEXT DECEMBER 1st



THIS farthest, this most fascinating of world wanderings. How simple, how inexpensive, how wonderfully comfortable it is made by the world's greatest travel system.

You buy one ticket. You board a great ship in New York harbor. From that moment, you do nothing but enjoy.

Madeira . . . . Algiers . . . . the Riviera. . . . By some magic of planning you arrive in the Holy Land for Christmas, in Cairo for New Year's Eve. By the same magic, you are in India for the January festivals, and in far-away Siam for the court season. By the time that Shanghai, Hong Kong and Peking lie ahead, you take even miracles for granted . . . . and land in Japan just as the plum trees blossom.

The instant you dock, you are off seeing and doing. You don't bother about prices or places, about languages or customs, about connections or accommodations. All your energy goes into pleasure . . . . all your time into relaxation.

Instead of sacrificing comfort, you live on the luxuriously roomy Empress of Australia, 21,850 gross tons. Home is always there . . . . in your room or suite. Your private club is always there . . . . in her spreading lounges.

Canadian Pacific runs this cruise with a picked sea staff, its own trained shore staff. Canadian Pacific has its resident agents in every port . . . . its official connections, such as the Indian State Railways. Is it any wonder that over 15,000 people have taken cruises with the world's greatest travel system?

Booklets which detail everything from your own agent, or any Canadian Pacific District Office listed below.

• • • •

Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Indianapolis, Kansas City, Los Angeles, Minneapolis, New York, Omaha, Philadelphia, Pittsburgh, Portland, San Francisco, St. Louis, Seattle, Tacoma, Washington. In Canada: Calgary, Montreal, Nelson, North Bay, Ottawa, Quebec, St. John, Toronto, Vancouver, Winnipeg.

OTHER CRUISES, 1928-29
(All from New York)

South America-Africa . . . 104 days. . . Jan. 22, 1929 . . . Empress of France.

Mediterranean. 72 days. Feb. 4, 1929. Empress of Scotland.

West Indies. 16 days. Dec. 22, 1928; 29 days. Jan. 10 and Feb. 11, 1929. Duchess of Bedford (new).

Canadian Pacific

World's Greatest Travel System

EMPRESS LINERS TO EUROPE AND ORIENT . . CRUISES . . TRANS-CANADA LIMITED . . BANFF . . CHATEAU FRONTENAC

Take 10 Shaves—FREE

Accept a generous test sample of this amazing shaving cream to prove that the remarkable claims men make for it are true

GENTLEMEN:

Advertising claims may sound much alike. And meritorious products that suit one may fail to please another. Hence we feel, in common fairness, that the way to introduce our new shaving cream is by offering a free test at our risk.

Thus, if it suits you—as it does the majority of those who try it—you will then buy it. Whereas, should it not, you will be out nothing.

If this reasoning appeals to you, detach the coupon now. Send it before you forget. We promise 10 delightful shaves which we believe will win *you*—as it has thousands—to this new delight.

These 5 exclusive features

1. Multiplies itself in lather 250 times.
2. Softens the beard in one minute.
3. Maintains its creamy fullness for 10 minutes on the face.
4. Strong bubbles hold the hairs erect for cutting.
5. Fine after-effects due to palm and olive oil content.

Now make the trial, please

No doubt your present shaving preparation suits you, yet there may be a better way. We've tried to find one for you, and will thank you to give it a test. Just send the coupon now, before you forget.

THE PALMOLIVE-PEET COMPANY
CHICAGO, ILL.

3974

10 SHAVES FREE

and a can of Palmolive After Shaving Talc

Simply insert your name and address and mail to Dept. B-1512, Palmolive, 3702 Iron St., Chicago, Ill.

Residents of Wisconsin should address Palmolive, Milwaukee, Wis.

.....

.....

(Please print your name and address)

The Game Reserves of Kenya colony—where giraffes & zebras graze along the railroad—the richest big game country in the world—almost never visited by travelers—is on the route of

Raymond-Whitcomb

Round Africa Cruise

Sailing January 12, 1929, on Cunard liner "Carinthia," for a ten weeks voyage completely around Africa, visiting

Dakar in Senegal — Freetown in Sierra Leone
(a region of primitive Blacks and barbaric dances)

Capetown and old Dutch South Africa

Durban — Natal — Madagascar

Zanzibar — Mombasa — Nairobi

The Big Game Country of British East Africa

The Sudan and Egypt

★ *With trips to Victoria Falls, Kimberley and its Diamond Mines, Cecil Rhodes' Tomb in the Matopo Hills of Rhodesia, the Mountains of the Moon, the headwaters of the Nile and Khartoum, capital of the Sudan.*

The only cruise devoted primarily to Africa, and the only African cruise to include all sections of Africa.

Rates, $1250 and upward

Send for the Booklet—"AROUND AFRICA"

Mediterranean Cruise

¶ Sailing January 22, 1929, on the Cunard liner "Samaria" and visiting the famous Mediterranean cities and great ports—and in particular, *Egypt* and the *Holy Land*, beautiful *Taormina* in Sicily, the historic islands of *Malta, Cyprus, Corsica* and *Sardinia*, and picturesque towns on the *Dalmatian Coast*—Rates, $1000 and up.

Land Cruises in America

Round trips of three to nine weeks on special trains built for Raymond-Whitcomb

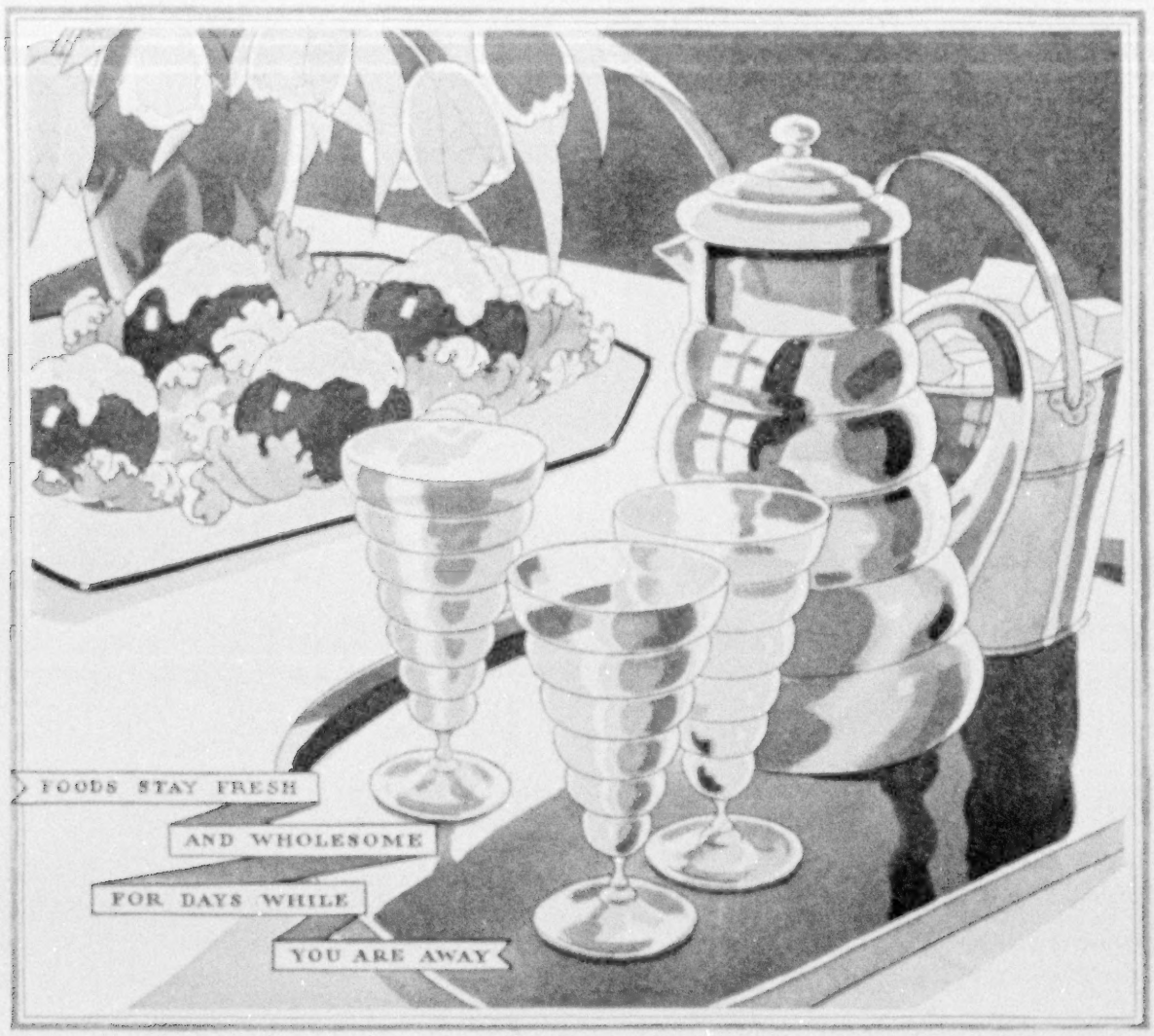
Raymond & Whitcomb Company

Executive Offices: 26 BEACON STREET, BOSTON, MASSACHUSETTS

NEW YORK PHILADELPHIA CHICAGO
LOS ANGELES SAN FRANCISCO

FRIGIDAIRE

THE CHOICE OF THE MAJORITY



ICE CUBES! Frozen desserts and salads! Automatic, electric refrigeration that safeguards your foods day and night . . . whether you are at home or away! Constant protection to health! These are some of the advantages that Frigidaire brings to your home . . . advantages that have already won more users than have all other electric refrigerators combined. Frigidaire prices are low, and payments can be arranged to suit your convenience.

-:- -:- -:- Frigidaire Corporation, Dayton, Ohio -:- -:- -:-

FRIGIDAIRE

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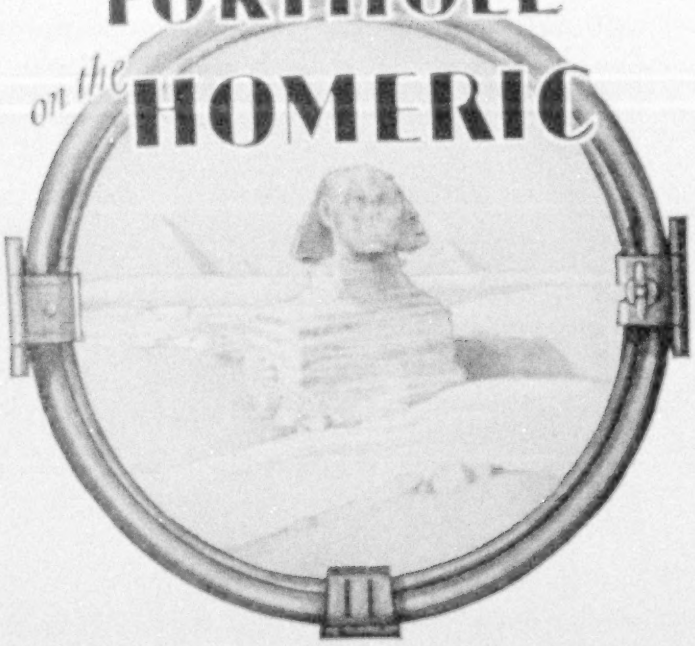

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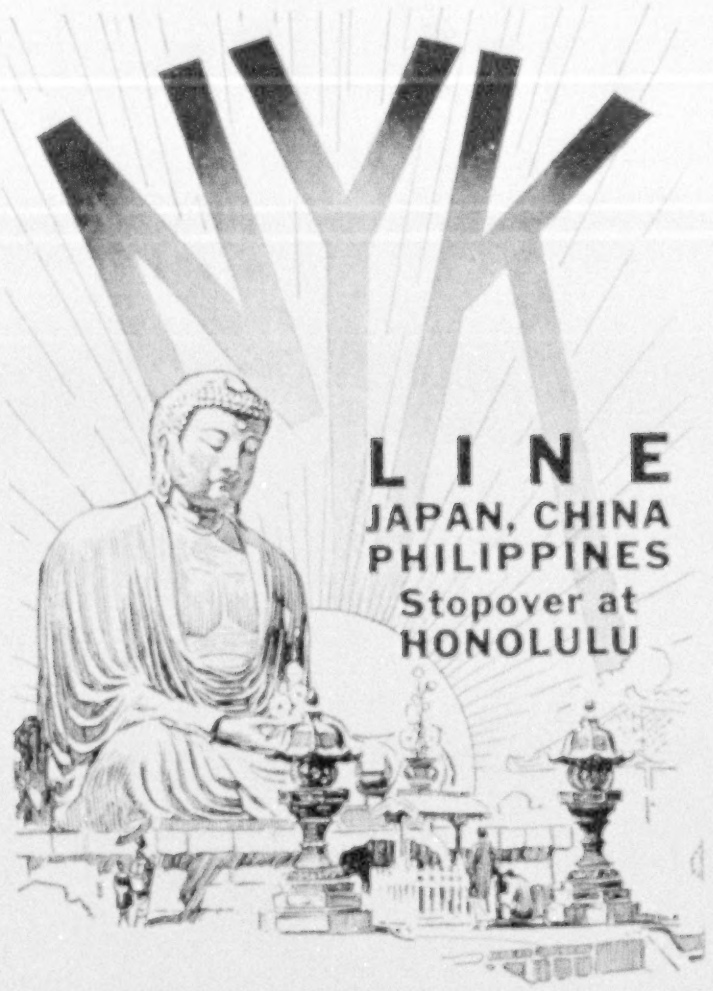

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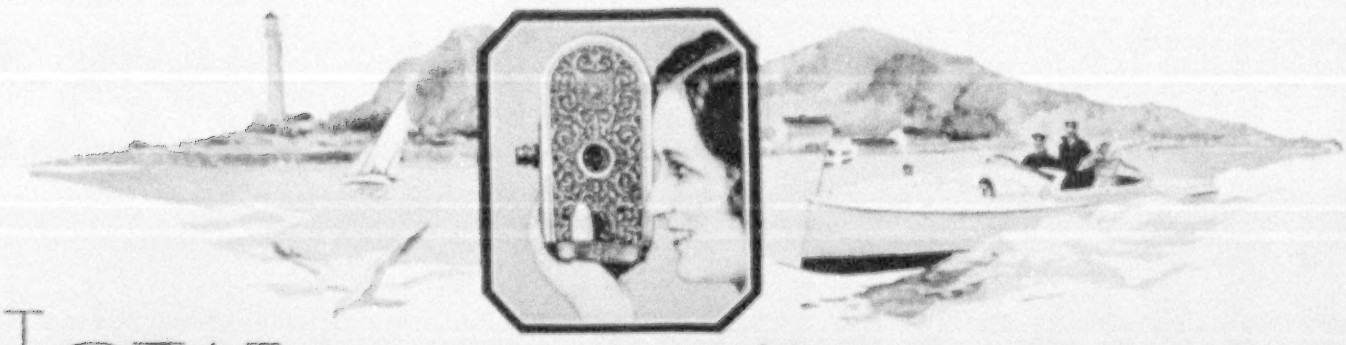

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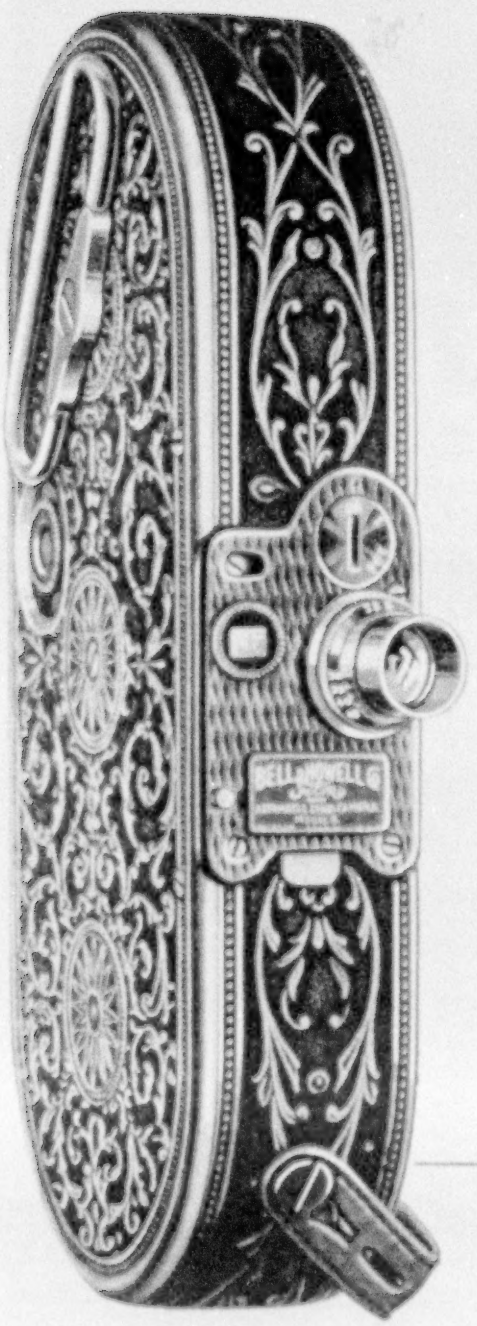

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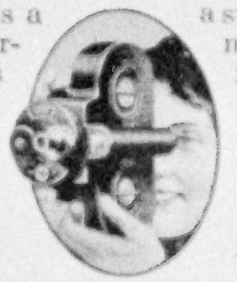

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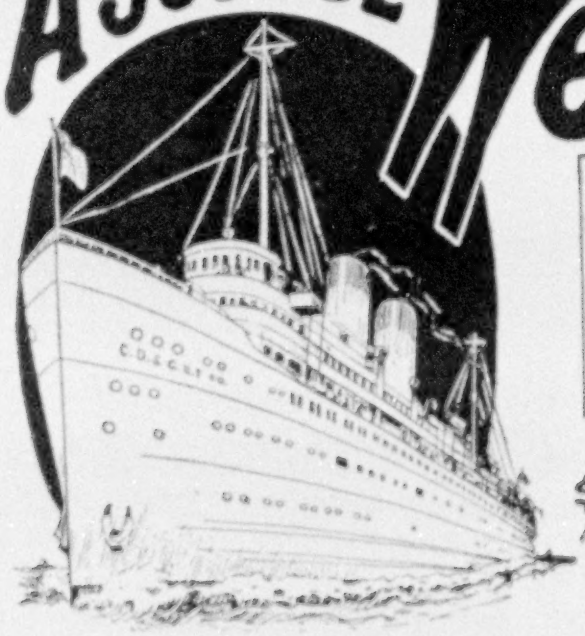

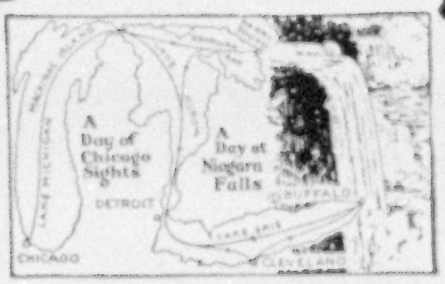

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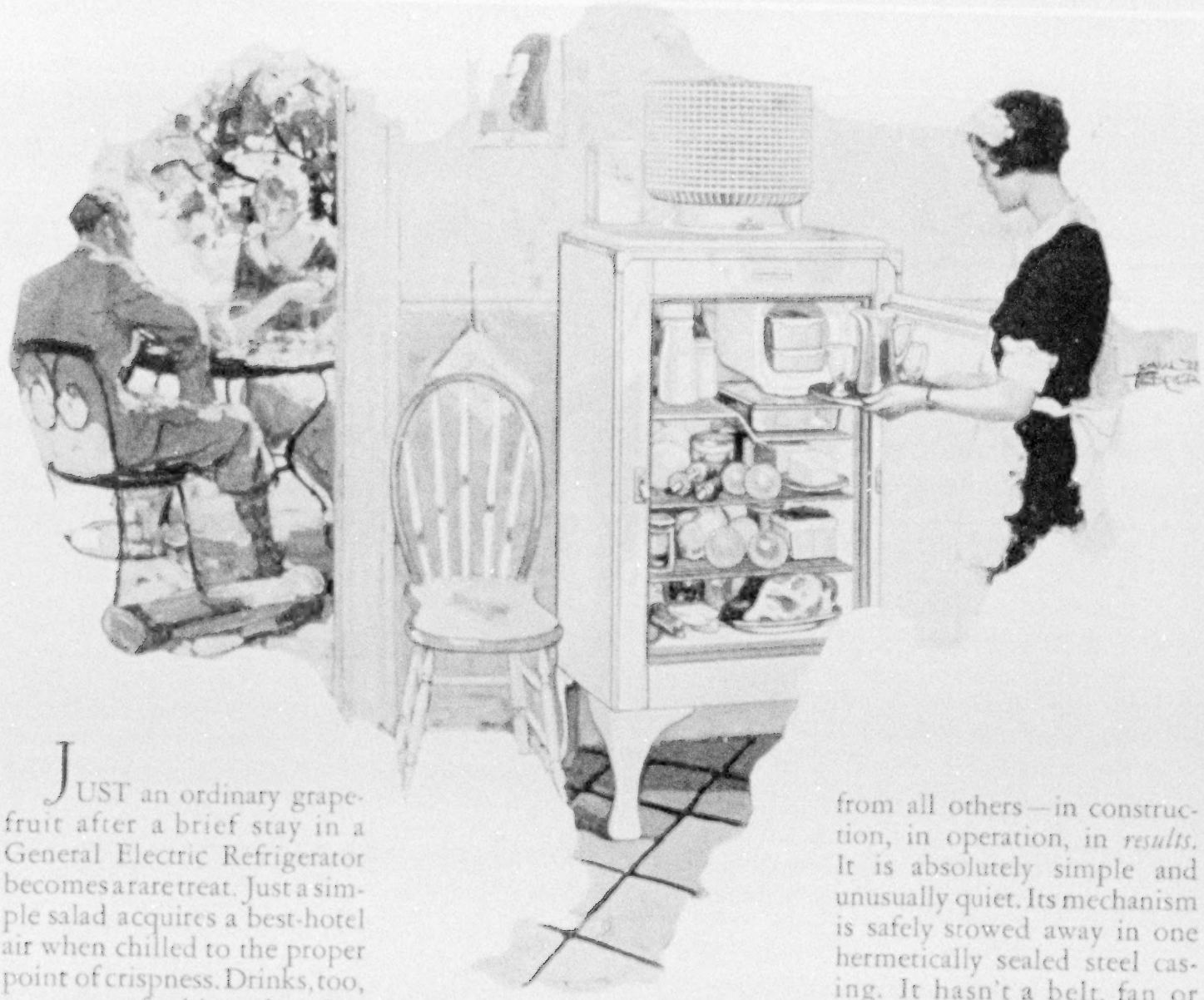

JUST an ordinary grapefruit after a brief stay in a General Electric Refrigerator becomes a rare treat. Just a simple salad acquires a best-hotel air when chilled to the proper point of crispness. Drinks, too, are more refreshing when they are really cold. Keep a supply in the refrigerator. Or, for last-minute serving, use your always-ready ice cubes.

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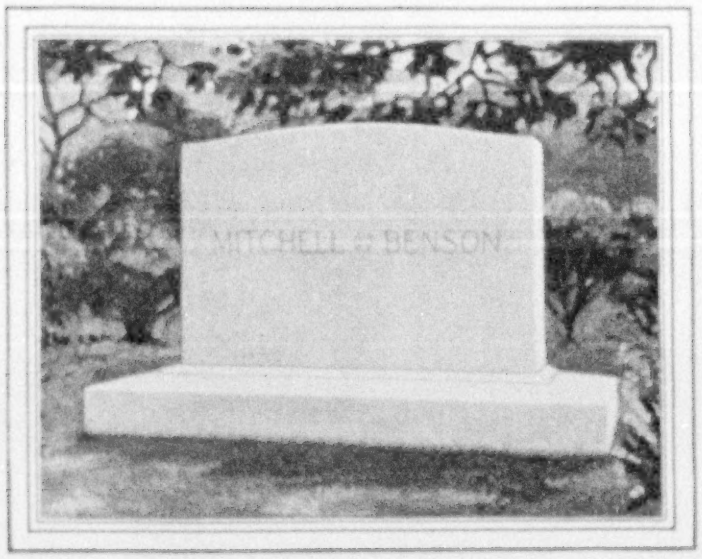

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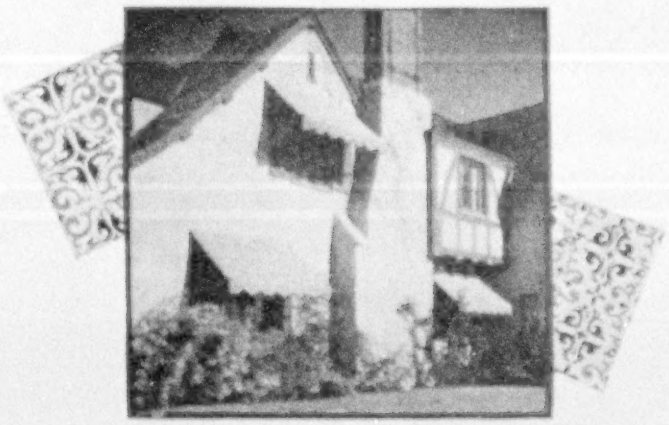

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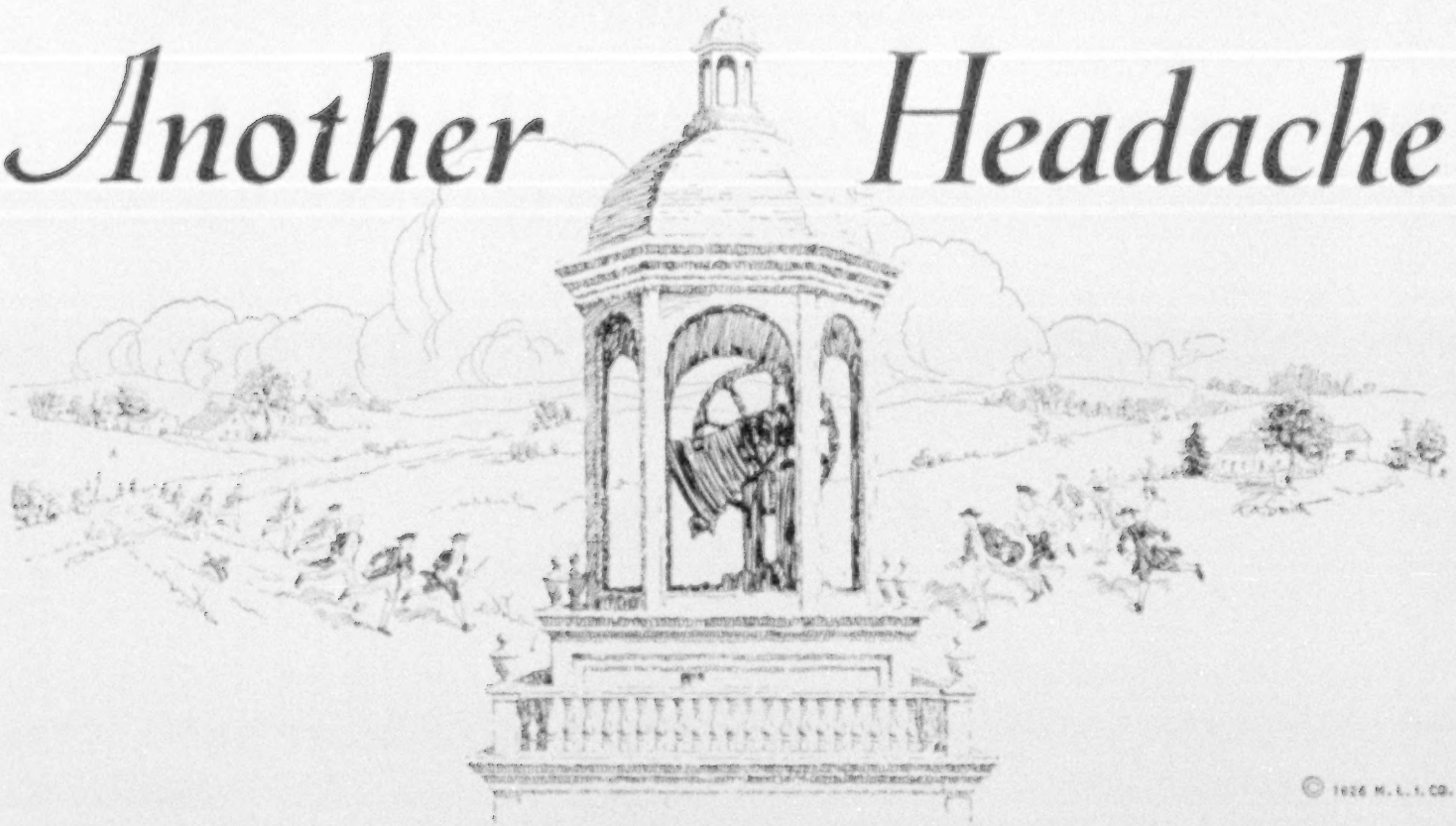
Another Headache



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"CLANG! Clang! Clang!" rang the bell in the old town-hall and at once the whole countryside was alert. The bell meant danger—usually FIRE!

"Bang! Bang! Bang!" goes the pain in your head—and it, also, is a warning of danger, perhaps grave danger, somewhere in your body.

Can you imagine any villager being stupid enough to cut the bell-rope because the clanging of the bell annoyed him—thus silencing the alarm while the fire raged? When you take a pill, or powder, or wafer to stop a headache, you may deaden the nerves which are carrying an important message of danger to your brain—but the "fire" goes on.

Headaches are usually symptoms of unhealthy conditions, perhaps in some totally unsuspected part of the body. There is almost no physical ailment which does not at some stage manifest itself in headache. Disordered kidneys or liver and intestinal difficulties, as well as nervous strain, infectious and contagious diseases often cause headache.

Fortunately the causes of the vast majority of headaches—indigestion, eye-strain, sinus and teeth infections and wrong posture—can be located promptly. But some of the obscure causes of headache can be found only by patient, skilful search. The trouble may come from a cause so remote from the head as a bone out of place in the foot or a toxic condition from a diseased gall-bladder.

It is risky to attempt to diagnose your own headache. You may guess wrong and waste precious time prescribing for an imagined ailment while the real trouble grows steadily worse. To still the voice of pain without finding its source is like cutting the bell-rope and ignoring the fire.

Beware of headache remedies composed of habit-forming drugs which may injure the digestion, destroy red corpuscles of the blood, undermine the nervous system, depress or over-excite the heart action, and at best may give only temporary relief.

Give your doctor a chance to find the cause. While he is searching for the cause let him prescribe something to relieve the pain, if you must have relief.

A booklet giving helpful information about headache may be obtained free on request to Booklet Department, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City. Ask for Booklet No. 78-N.

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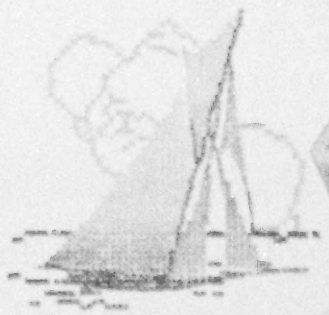

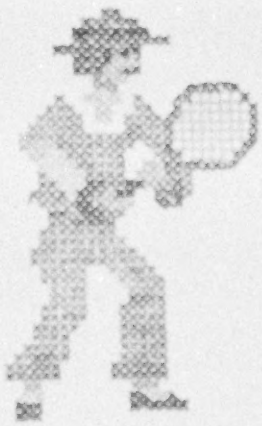

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THE NATIONAL GEOGRAPHIC MAGAZINE

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UNSPOILED CYPRUS

The Traditional Island Birthplace of Venus Is One of the Least Sophisticated of Mediterranean Lands

BY MAYNARD OWEN WILLIAMS

AUTHOR OF "EAST OF SUEZ TO THE MOUNT OF THE DECALOGUE," "STRUGGLING POLAND," "LATVIA, HOME OF THE LETTS," "THE COASTS OF CORSICA," ETC., IN THE NATIONAL GEOGRAPHIC MAGAZINE

With Illustrations from Photographs by the Author

IN SHAPE a rumpled oxhide, sprawling in the curve of sea where Syria swings west toward the Cilician Taurus, Cyprus points its tail toward fateful Issus, where boyish Alexander routed the hosts of Asia (see map, page 4).

Stand on the heights of Lebanon in summer and the profile of Cyprus, sixty miles from the mainland, shadows an inky blot on the waning sun disk. Look across the forty-mile strait from Asia Minor and you can count the serrations in the Kyrenia hills.

Once moss-backed with forests, later famed for the copper which bore its name, Cyprus acted as a stepping-stone and exchange center for ancient civilizations.

"What did you find to photograph in Cyprus? I did not take one camera out of its case," said a fellow-seeker for the charms of the Levant.

I know the feeling. That barren ride from the port of Larnaka to Nicosia through a chalky wilderness is enough to repel a very Romeo among travelers. Half-oriental Cyprus veils her charms, modestly masking her beauty in remote mountain valleys and along the northern shore, where no steamer stops except for carob beans, destined as provender for Spanish cavalry horses (page 20).

Steaming from Beirut into the sunset glow, one docks at dawn in Famagusta harbor, beside Othello's Tower, where the dark-skinned Moor, inflamed by Iago, smothered his Desdemona (page 5).

WICKED FAMAGUSTA SOUGHT SALVATION IN CHURCH-BUILDING

Once Famagusta, rich and wicked, had a church or chapel for every day in the year. It is a graveyard of old churches now—some sunk in ruin, one or two still used to house the glittering panoply of worship, one changed into a mosque, starkly simple as a prison cell, but with a Mecca-ward mihrab pointing the soul to Paradise.

There are exploded churches with pale frescoes on their roofless walls, small Byzantine chapels hiding among palms or almond blossoms, and a whole awkward squad of churches along the western battlements.

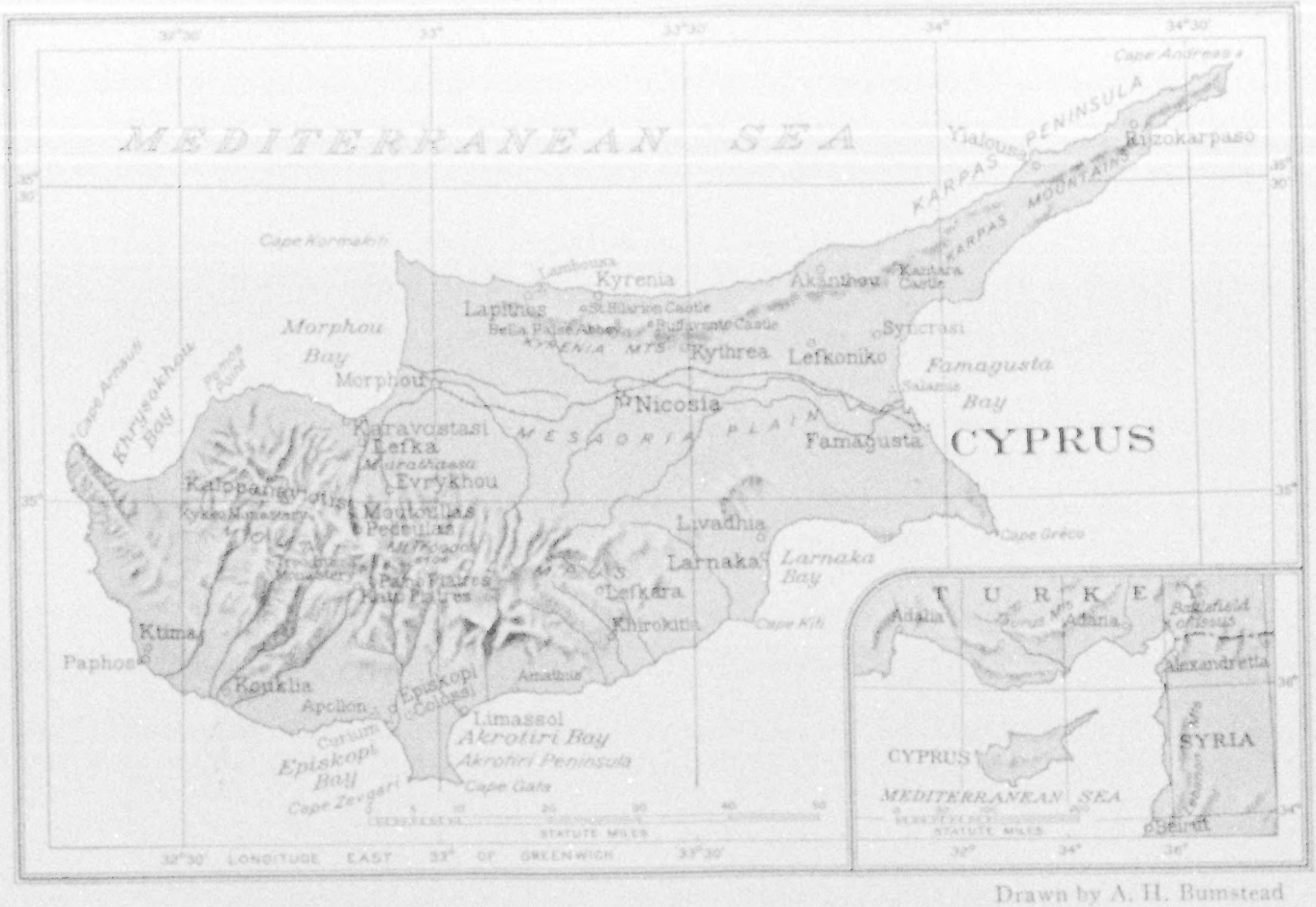
The walls of Famagusta are massive and high, with moats cut from the native rock on which the bastions rise and with gun platforms, or cavaliers, overlooking them from within. At the Land Gate there was an almost unique ravelin, or outworks, which was useless, and at an-

ONLY MEMORIES REMAIN OF THE ONCE PROUD "EMPORIUM OF THE EAST"

Famagusta's harbor, the best in Cyprus, was not always so placid. In the extravagant, luxurious days of the Lusignans, merchants and pilgrims, scholars and soldiers, flocked here. Its citizens were so rich that one of them at the betrothal of his daughter gave her a headdress the jewels of which were valued as "more precious than all the ornaments of the Queen of France." In the background the Sea Gate (see page 9) juts out from the wall. Othello's Tower (see page 5) closes the near view, with the Karpas Peninsula in the distance.

MAIN STREET IN FAMAGUSTA LEADS FROM LAND GATE TO SEA GATE

In olden times the thoroughfare separated the Latins living on the north and west of it from the Greeks on the south and east, but to-day nearly everyone inside the walls is a Moslem. Most of the street was probably a covered bazaar. In the middle background is the Mosque of Ay. Sofia (see, also, pages 6 and 7).



Drawn by A. H. Bumstead

THE ISLAND OF CYPRUS LIES NEAR THE EASTERN LIMITS OF THE MEDITERRANEAN

The traditional birthplace of the Greek goddess Aphrodite (Roman Venus) is approximately the size of Porto Rico, but with only about one-fourth as many inhabitants.

other corner the masterly Martinengo bastion, which was merely futile.

Along the north wall is a golf course. A slice and you are over the ramparts, very much out of bounds. A short pitch to the green and your ball rolls into some prehistoric cave now used as a Moslem home (see illustration, page 14).

Looking northward from a driving tee, one sees the site of Salamis, six miles away. When Paul and Barnabas landed in Cyprus, Salamis was a Roman capital. Little by little its various forums and market place are being rescued from the drifting sands and viper-infested brush. Salamis enthusiasts would gladly use its Byzantine name, Constantia, for it is disconcerting, while trying to hang a splendid past onto a lot of sadly fallen columns (see page 17), to have visitors exclaim that they have always wanted to see the site of the Battle of Salamis, which occurred 600 miles away!

From Salamis westward to the American copper-ore docks at Karavostasi there stretches the great "treeless plain" of the Mesaoria, with, however, a miniature forest at Syncrasi and orchards surrounding many of the villages.

At places, as around Lefkoniko, this plain is rich with waving grain or dotted with golden threshing floors, where the driver sits in an easy chair atop the ox-drawn threshing sledge. Elsewhere rock strata, tiptilted toward the sky, discourage agriculture, but rare is the view in which some leaden-footed animal is not dragging a plow (see pages 15 and 42).

Along the north run the Kyrenia Mountains, which one labels mere hills until he has climbed to Buffavento Castle or to St. Hilarion and looked down with awe on plain and sea. Strung out in a well-defined and craggy ridge, they guard the pleasant northern slope from the central plain. Strong sea winds, sweeping south, blow the trees lopsided toward the hills.

South of the Mesaoria are massed the mountains that culminate in Troodos, the Cypriote Olympus. Cutting the northern face of that mass are neighborly valleys traversed by shrunken streams—the most charming bits of the whole island.

WAITING FOR A CYPRUS CLOUD

North of Salamis one of the prominent perches is occupied by Kantara Castle—the Hundred Chambers. Choosing a fa-

HERE OTHELLO SLEW HIS GENTLE DESDEMONA

The citadel of Famagusta is popularly known as Othello's Tower, but not until after the British occupied Cyprus was it associated with Shakespeare's tragedy. In the Middle Ages the citadel and its protecting moat formed the port's principal defense. On this corner of it Venice left another of her lion symbols (see, also, page 9).

PROVIDERS OF MILK, CHEESE, MEAT, AND LEATHER

These white goats live inside the walls of Famagusta. They cost little to buy and nothing to feed, but their vagabond habits of wandering about unrestricted and foraging on young shoots of trees and seedlings are responsible for much of the destruction of the fine forests for which Cyprus was noted in olden times.

CYPRUS DINES NEAR WHERE KINGS WERE CROWNED

Shaken by quake and bombardment, scarred by Turkish cannon balls, one Gothic turret elongated into a minaret, the broken buttresses and ruined belfries of the cathedral-mosque of Ay. Sofia even so recall brave days in Famagusta, when the Lusignans, after Acre fell in 1291, were crowned here as kings of Jerusalem (see, also, page 7).

vorable spot near here, I sat down to wait for a rift in the clouds. Dripping with perspiration after a fight through underbrush and appreciating this enforced rest, I was able to take a philosophical attitude about the feature that adds, more than any other, to the winter and spring landscapes in Cyprus (see page 16).

A cloud is a precious and a fleeting thing. Sunshine is so common that cities can confidently boast of months of sunny days.

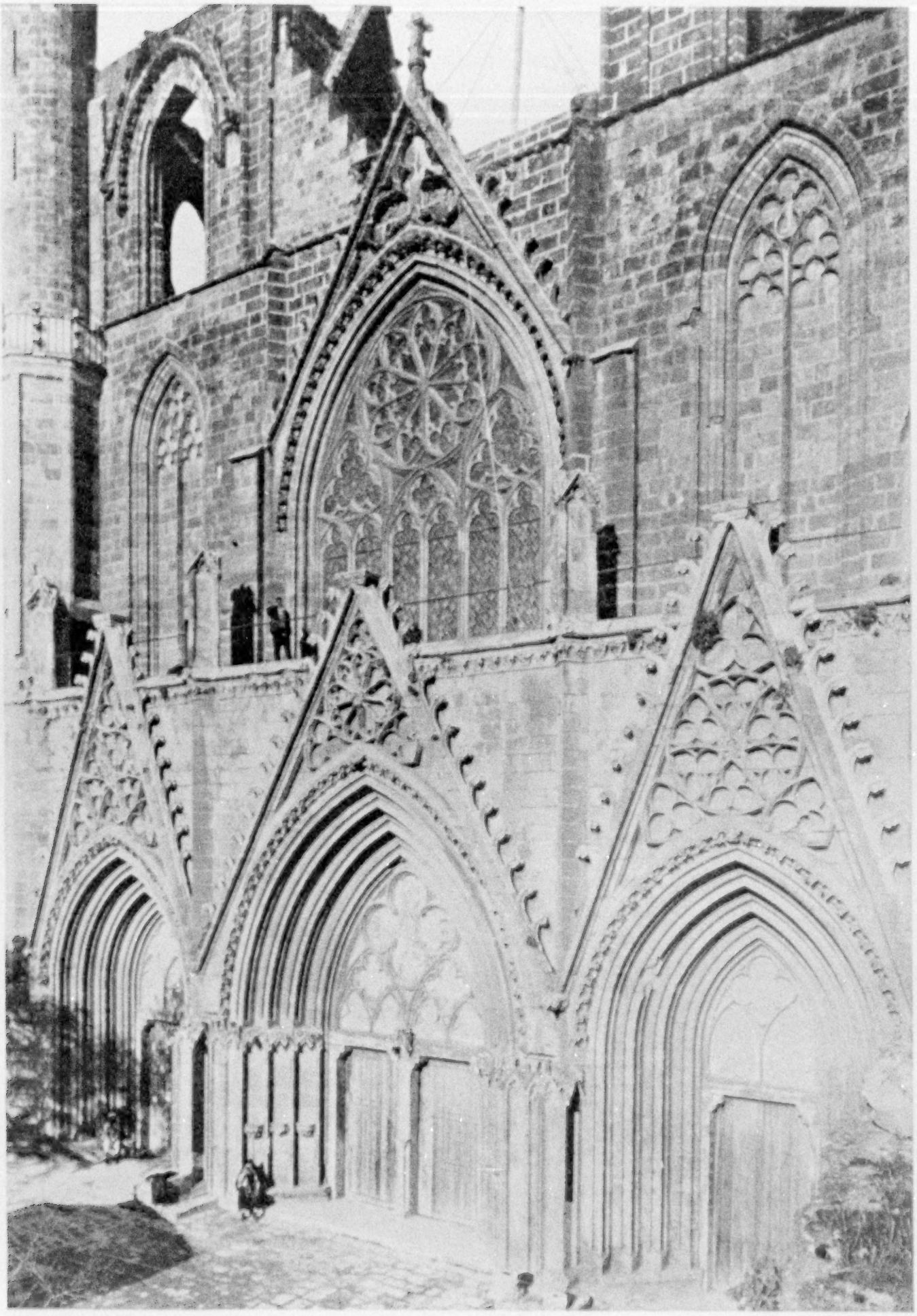
Moonlight is delivered at set hours, so that one wishing to wander at night amid the forest of columns at Karnak, or see the stained marble of the Parthenon purified, or catch the lunar glint on the blue tiles of the tentlike Temple of Heaven, or emerge from the inky Sik at Petra to see the mahogany-tinted Khazne shine like an opal in the desert moonlight, has but to consult a calendar.

But clouds are wayward and capricious. They race past at a speed with which no man can cope, or tantalize for hours, and then part their magic curtains the moment one's back is turned, lending glory to the beauty they had hid.

Clouds try one's patience and reward it. Clouds fill in the featureless blue with beauty dramatic in its intensity and variableness. They won't be hurried or driven. They won't wait in their courses, as the remotest star does before the trained telescope. They are the playboys of the landscape, errant mischiefs who distract one for hours and then make him glow with joy at a coquettish but satisfying glance.

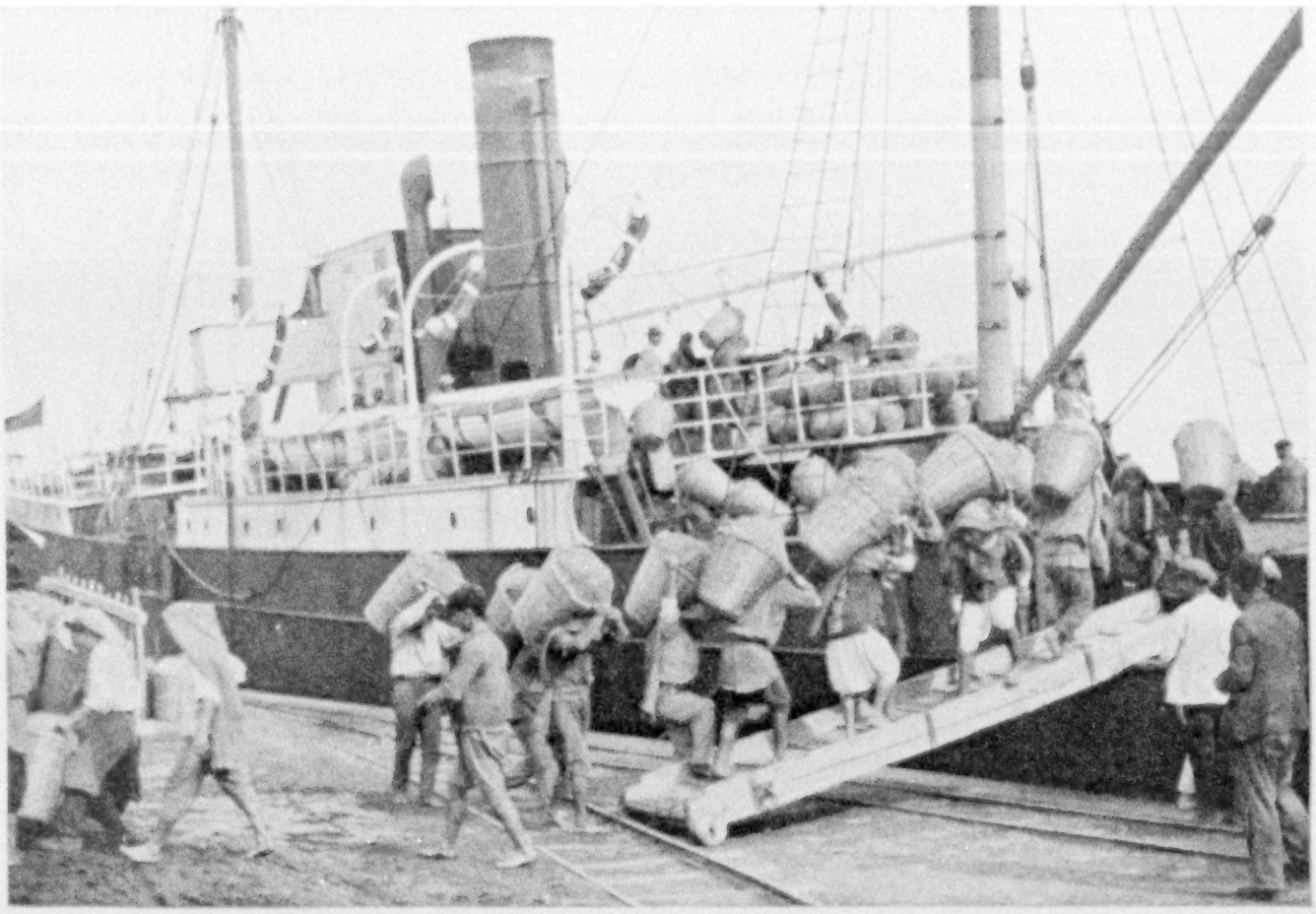
HEAD SHAWLS WORN BY MEN OF CYPRUS

Although when they wore head shawls I often mistook them for women, the men of Cyprus have a distinctive costume—a straw hat with a mushroom brim, a plain shirt sometimes with a jacket, voluminous Turkish trousers whose seats are tucked into their belts for cross-country walking, and heavy leather boots with their tops turned down and tied above the calf.



THE MUEZZIN CALLS TO PRAYER FROM A CHRISTIAN PORTAL

He stands near the pinnacle of the central doorway, amid the maze of Gothic details adorning the façade of the 14th-century Cathedral of St. Nicholas, now Famagusta's Mosque of Ay. Sofia. After the Turks captured the city in 1571, they stripped the cathedral's interior of all its Christian trappings, reducing it to bare architectural outlines in unrelieved whitewash.



LOADING FAMAGUSTA ORANGES ON THE DECK OF A SMALL GREEK STEAMER

A large number of porters are used, as the ship stays in port only part of the day.

When one sees a group of Cypriotes at a distance, he looks for toy shovels and pails, for they resemble little boys in wide rompers and sun hats, going to play on the beach. The Moslems wear a kerchief with lace flower fringes about their red tarbooshes, and pink or orange shirts, blue trousers, and purple stockings, all protected from autochromes by religious tenets.

The women do little to keep alive the Aphrodite tradition. One of their sex says of them: "They are rarely pretty or even good-looking, being heavy of feature and clumsy of form, and their voices are harsh and shrill. But how could any woman be beautiful who works from sunrise till dark for a few piasters a day?"

WORD-PAINTING THE GIRLS OF RIZOKARPASO

Murat, my Famagusta friend, praised the women of Rizokarpaso, out on the tail of the oxhide which Cyprus suggested to ancient cartographers.

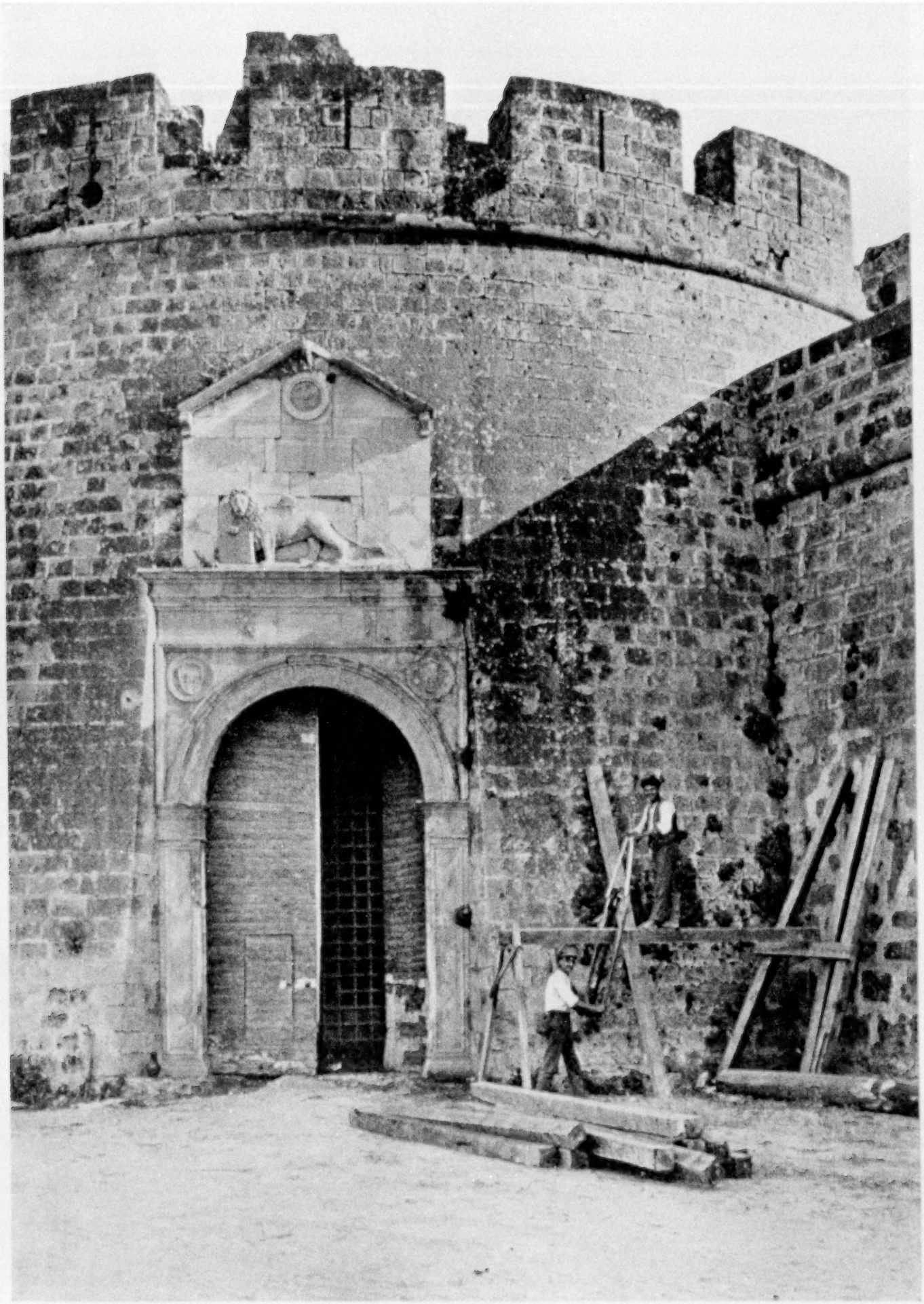
"The people out there are more industrious and their houses are stone instead of mud. They don't work their women so hard, and the climate is not as hot as in the plain. The girls wear a shift of soft, straw-colored silk with bits of glint in it. Over that they wear a combination skirt, colored like Solomon's glory, and jacket with the front open, revealing a pleasing contour.

"On their heads they wear gauzy kerchiefs called *mandilyia*, dark green, with tiny lace flowers at the edges, so worn that the fringes are like floral wreaths. Their hair hangs low in long braids and their walk is queenly, like that of Syrian women who bear burdens on their heads."

We rolled into Rizokarpaso on waves of dust and heat. The panting village sprawled out amid the green of grain and orange grove. Former home of pirates, its houses are widely dispersed, as if the builders had feared one another more than they did invaders.

On the glaring white roads not a person moved. In the coffeehouse, men shouted drunkenly. I suspected Murat of imagination.

The cook, a super-Katarina, fulfilled the letter of his description, but violated the spirit through sheer generosity. She was fit material for two of Rizo's dream women, but not for one.



THE LION OF ST. MARK KEEPS LONELY VIGIL AT FAMAGUSTA

Cypriotes operate their two-man sawmill in the shadow of the Sea Gate Tower, the most arresting feature of the city's Venetian fortifications. The upper part of the gateway consists of pieces of colored marble, against which the symbol of the proud Adriatic republic faces seaward (see, also, page 5). The original iron portcullis still hangs in place.

GROCER AND BUTCHER WAIT FOR CUSTOMERS IN FAMAGUSTA'S MARKET

When business is slack the Famagustan can slip over to the humble café at the left for coffee and a chat, or to the more pretentious open-air restaurant which spreads its tables and chairs beneath the mosque of Ay. Sofia (see page 6). Here he can dine off goat's meat, tough, nutty bread, ripe olives, a soft pad of sour cheese, and wash the meal down with a draft poured from a pink-clay, narrow-mouthed pitcher stoppered with a lemon.

When my driver came to say that a pretty girl was waiting, the town rose as one man and followed us. During the trying moments that ensued I conceived a deep respect and liking for the twelve-year-old Helene who bravely faced my camera while the curious crowd of her fellow-townsmen gazed and jabbered and laughed.

It was too cruel a test. On the morrow, I suggested, I might try again.

"To-morrow I have to work on the Cape Andreas road," Helene answered naïvely, "but if you want to take my picture, my mother will break rocks in my place."

Not once did I capture the whole charm of that gentle little girl whose tasks are those of men. Her hands were horny with labor. Her large feet were cased in rude shoes. Her immature body skimped Murat's description as the cook's had overflowed it, but Helene won my gratitude for her help. When you look at her picture, it is a fine spirit that is speaking to you across the miles (see upper Color Plate IV and page 26).

As we returned from the church of St. Andrew the Miracle Worker, dowered with grotesque *ex voto* offerings in beeswax—one of them presented by a man who then lay, slowly dying, on the floor—there was Helene straddling a pile of rocks, "making little ones out of big ones" as industriously as any convict (page 16).

REDISCOVERING BUFFAVENTO CASTLE

One of the highest peaks in the Kyrenia chain acts as a perch for Buffavento Castle. It isn't much of a castle now, but its site is marvelous. In 1683 the Dutch traveler, Van Bruyn, visited it. "We had to climb with our hands as well as our feet, and whichever way we turned our gaze we saw only what made our hair stand on end" (see page 23).

Rey, who made an admirable plan of the ruins, had to climb to them "flat on his belly." Kammerer, after three hours from Kythrea, had arrived only at the Monastery of Chrysostomos and left Cyprus without making the climb to the castle, more than 3,000 feet above the sea.

When we reached Kythrea, perennial oasis, the sun was already high. On foot we retraced a mile of the motor road, taking little consolation in the thought that the mile would still be there on our return, but that the motor would not.

After an hour and a half we came to a village. The muleteer who was riding gestured, palm down, as an umpire does when a man is safe. That, in oriental, means "We're here!" He was bubbling with delight, his duty done.

High above us, and miles away, there towered the peak on which I imagined the castle to be.

"We're here, but Buffavento Castle is there," I said, my arm lifted toward the zenith. The plainsman went white. All his life he had lived at the foot of that puny range. But climb to the top? He called the village schoolmaster.

"I speak very well English," said the village Ichabod, but when I inquired about the castle, he had never heard of such a thing.

"Castle? What is it, a castle?"

THE MONASTERY PROVIDES A GUIDE

Full of military architecture and battlements and moats and bastions as I was after days in Famagusta, my lecture left him blank. He could only point up the slope toward a white monastery set among charming orchards and suggest that I inquire there. Because that brief climb was beyond the mental terminus of the muleteer, he made hard work of it.

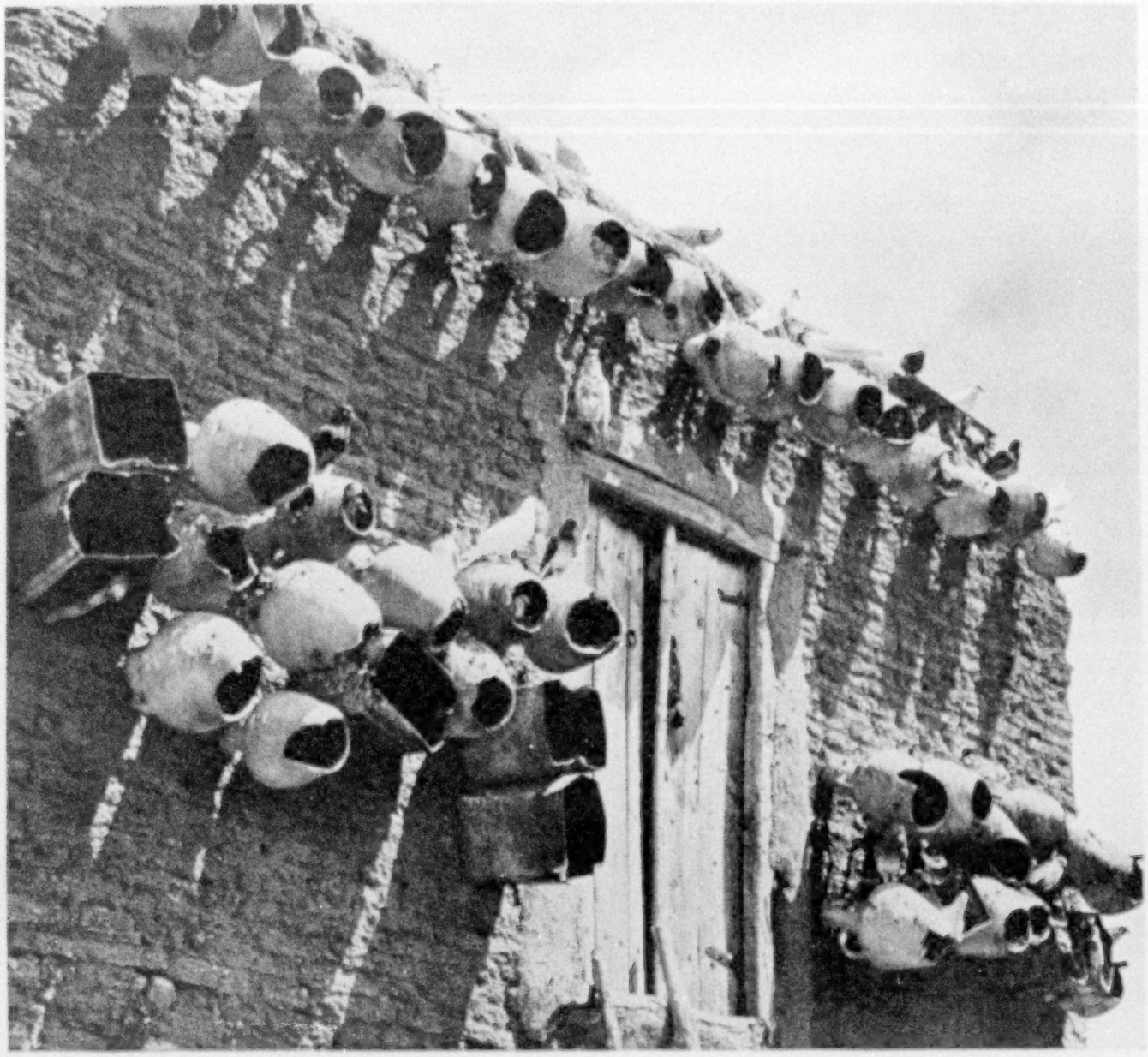
Being a Cypriote, his worry was not at being asked to do more than he had bargained for. He was not shamming to swell the travel fund. That upreared mountain really oppressed him.

The "pappa" at the Monastery of St. Chrysostomos made things sound simpler. Out of the welter of Italian, crusted over with Latin, I sorted out the idea that he would give me a "homo" to guide me to the top.

Since the magnitude of our undertaking still had the muleteer gasping for breath, I decided to leave him behind with his mule.

The "homo," a toothless woman, was no flapper, but her heelless slippers were.

It was too much for my manhood to see that little woman shoulder my heavy camera and start to scale that precipice in flapping slippers held on by personal magnetism. I would not stand it. So I called the muleteer and made *him* carry the camera.



BROKEN JARS MAKE GOOD DOVECOTES

The dove bears a peculiar relation to Cyprus, the island of Aphrodite, for to the Greek goddess it, as well as the sparrow, swan, and swallow, was sacred. The story is also told of a Cypriote king who kept himself cool by causing doves to flutter around him.

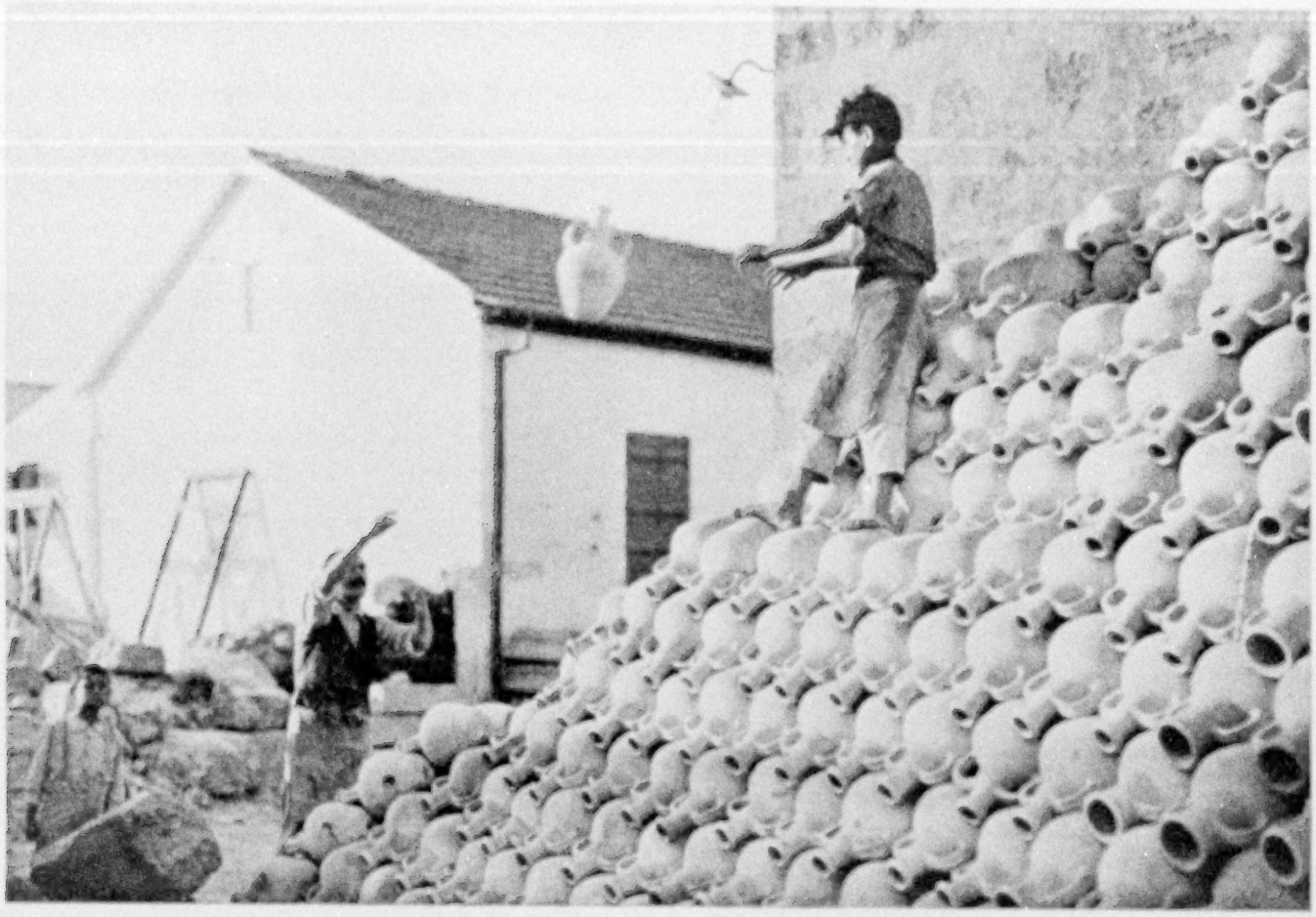
An hour afterwards we were at the top, our hearts pounding and our spirits stirred. The slippers still covered those bare feet. The camera was in the capable hands of the "homo."

Luckily there was a breeze off the plain. All the time we were there cloud waves from the north tried to storm that craggy ridge and were driven back in defeat

They sent out tenuous scouting parties, which the hills might have overlooked, but didn't. They gathered their cohorts in unbroken masses that swept up the cliffs with relentless rush; but at the peak they were dissipated, like the impetuous steam that hisses forth from a locomotive's flanks and fades away to nothing in the sun. The very rock on which we stood seemed to sway to their movement.

On our return the priest had mountain honey and cheese and bread waiting for us. The hard climb had lent attractiveness to the well-kept orchard, the small plowed fields, the fruit blossoms, and the mountain air; but better than all was the crystal-clear water from a fount near the ruined church with its flaking frescoes. The "homo," delighted with a present she well earned, busied herself at the unbelievable anachronism of suckling an infant.

After that climb a Cyprus saddle was no kind treatment for honest legs; so I returned to Kythrea, as I had come, on foot. Behind me rode the muleteer, chuckling over the greatest conquest of his life—a plainsman turned mountaineer in one lesson, and that lesson given by a toothless woman with a newborn babe.



CATCH!

At this Famagusta pottery a boy walks up the piles of crocks and catches those tossed up to him from below. The ones he misses go to the dovecote (see opposite page).

In spring the prize resort of Cyprus is Kyrenia. Almost overhanging the town, St. Hilarion, castle of Eros, clings to a crude crag.

WHERE THE CASTLE OF EROS CLINGS TO A CRAG

Beyond the horseshoe harbor, miniature of Corsican Bastia's, there is the golden mass of Kyrenia Castle, dwarfing the white and opal town, set on a green slope between gray mountains and blue sea. Across the waters to the north the snowy heights of the Cilician Taurus hang like clouds (see Color Plate III and page 25).

After sunset the light-colored houses seem to give back the light, and the great castle, whose warm, brown flanks are so impressive in the early morning, becomes a somber guardian of the radiant homes.

People come to Kyrenia to see the castles, the monastery, and the pleasant slopes planted with grain and dotted with olive and carob trees. They remain until the castles are old stories, the Phœnician rock-cuttings have lost their first mysterious challenge, and the harbor has become a mere incident.

The proprietor of the Kyrenia hotel was once night chef in the Knickerbocker, New York City, U. S. A. Cyprus provides the setting, England provides the guests, California provides the asparagus, and Oregon the apples. It is a great combination. An army may move on its stomach, but the tourist army rests on it.

The climb to St. Hilarion begins through green grainfields, passes under dusty olive and shiny, heaven-sent carob trees, whose sweetish, dark-brown pods the Prodigal Son would fain have eaten, zigzags toward a rusty cliff, tops the pass behind, and comes to the plain from which rises the rock pedestal for this romantic ruin.

But when one has scrambled among the evergreens whose roots are splitting medieval battlements apart, the romantic castle, shouting "Excelsior!", high and inaccessible, has disappeared, and there are only some decrepit walls, forgotten by the Titans who tossed them there.

A few bits of old fresco remain in the church, whose plaster is stronger than the brick and stone. It is thought that the old mortar derived its extraordinary strength from albumen, both eggs and human blood

AN UNUSUAL SKYLINE ON THE FAMAGUSTA-KARPAS PENINSULA ROAD

The main highway along the peninsula passes through pretty country and is suitable for motoring as far as Rizokarpaso. In early times the whole region was thickly settled, many of the seaside villages being the homes of Levantine pirates, who scourged the neighboring waters.

LOOKING WEST ALONG FAMAGUSTA'S NORTHERN RAMPARTS

Inside is a curiously situated golf course (see text, page 4), on which a careless shot means out of bounds not only technically but actually.

BIBLICAL PRIMITIVENESS PERVADES THE CYPRIOTE LANDSCAPE

Grazing flocks and an oxen-drawn plow characterize this pastoral in the Bogaz, a pass through the chain of hills along the north coast. Though some of the farmers have adopted the iron plow, the light, native-made wooden implement is the type most commonly used.

being the legendary materials. In Latin America, Las Casas is said to have taxed the country for eggs with which to make his mortar strong. Archeologists still use lime and albumen, cut with lemon juice, as a cement for their potsherd history books.

THE FINEST RUIN IN CYPRUS

Bella Païse Abbey, a mere picnic jaunt from Kyrenia, is the finest ruin in Cyprus. The cloisters, from whose graceful archways vandals have torn away stone traceries, are still beautiful. The refectory, with its swallow-nest wall-pulpit, from which lectors once droned to eating monks, is almost intact (pages 24, 27).

The abbey stands in a pleasant hillside town, bowered in fruit trees and with a few palms, amid waist-high grain, much of it cut green for fodder. In the porches men toss golden strands of carob taffy over the forks of sticks and "pull" shiny hammocks of it, as candy-makers do. The tree gives food as well as fodder.

Mr. George Jeffery, whose "Historic Monuments of Cyprus" is indispensable, even to the hurried traveler, says:

"The Abbey of Bella Païse is certainly the most magnificent souvenir and architectural monument of the Lusignan Dynasty of Cyprus. It was designed on a scale and with a completeness worthy of

THE CASTLE OF THE HUNDRED CHAMBERS SEEMS TO HANG IN MID-AIR

The Lusignan stronghold of Kantara, which dates back to the early 13th century, and some of it even to Byzantine times, crowns a precipice at the western end of the Karpas Peninsula. "Buffavento stands higher, and St. Hilarion can show more perfect ramparts and turrets, but neither recalls so strangely a forgotten age, neither seems to be so thickly peopled with its ghosts, as this lonely ruin on its pillar of rock." This is the view east along the ridge which forms the backbone of the peninsula.

MAKING LITTLE ONES OUT OF BIG ONES

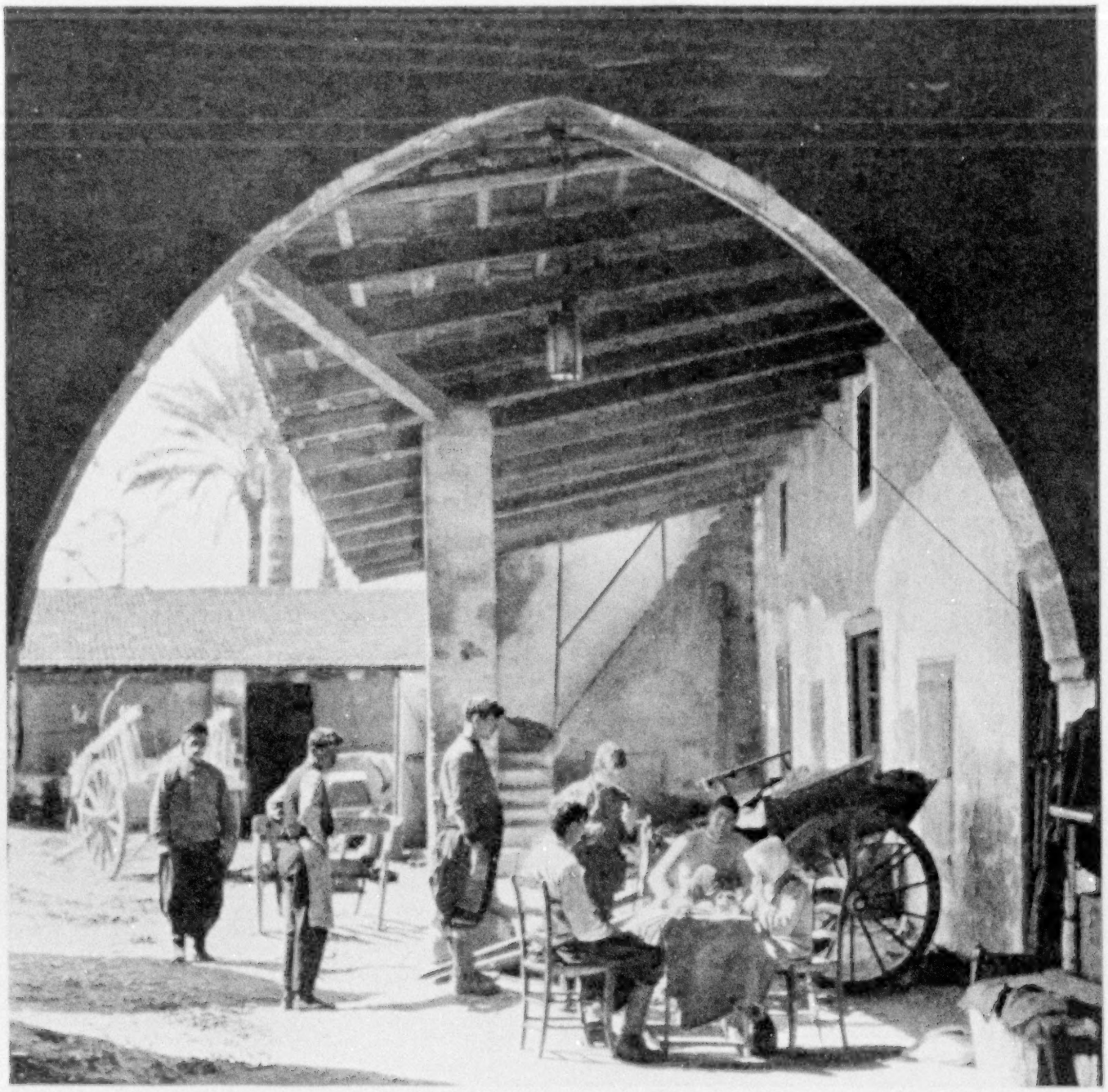
Helene and her mother are breaking rocks to be used in connection with road work. Though the child's hands were horny with tasks which were suitable for men, a fine spirit speaks from her gentle face (see, also, text, page 11, and Color Plates IV and VI).

ST. ANNE'S HAS WEATHERED STORM AND WAR

Mutilated when the Turks bombarded Famagusta in 1571, and once degraded to a stable, this small church, nevertheless, remains one of the best-preserved architectural examples of medievalism in Cyprus. At both ends of the belfry is a curious half-gable, a local invention of Cypriote masons. In the left background is the former Cathedral of St. Nicholas, now the Mosque of Ay. Sofia; at the right is a ponderous, earthquake-shaken structure called by some historians the Church of Saints Peter and Paul.

DESOLATE SALAMIS WAS ONCE A BUSINESS CAPITAL OF THE ROMAN WORLD

This marble forum was one of the largest ever built by the Romans. The sand-clogged site dates back to pre-Trojan War days. After the Arabs destroyed the city in 647, fragments were taken from these ruins to build Famagusta, six miles away.



HERE IS SHELTER FOR MAN AND BEAST

In Cyprus, as elsewhere in the Levant, the khan, or caravansary, has little to offer in the way of comfort or convenience either for man or animal; yet a certain picturesqueness inheres in the very dirt and disorder. Almost every town on the island has an old khan where the native can leave his donkey or other beasts while he goes out to shop and sell.

its royal foundations and patronage. It is quite unlike anything else of the kind surviving in the Levant and can only be compared with similar monasteries in Spain or Italy."

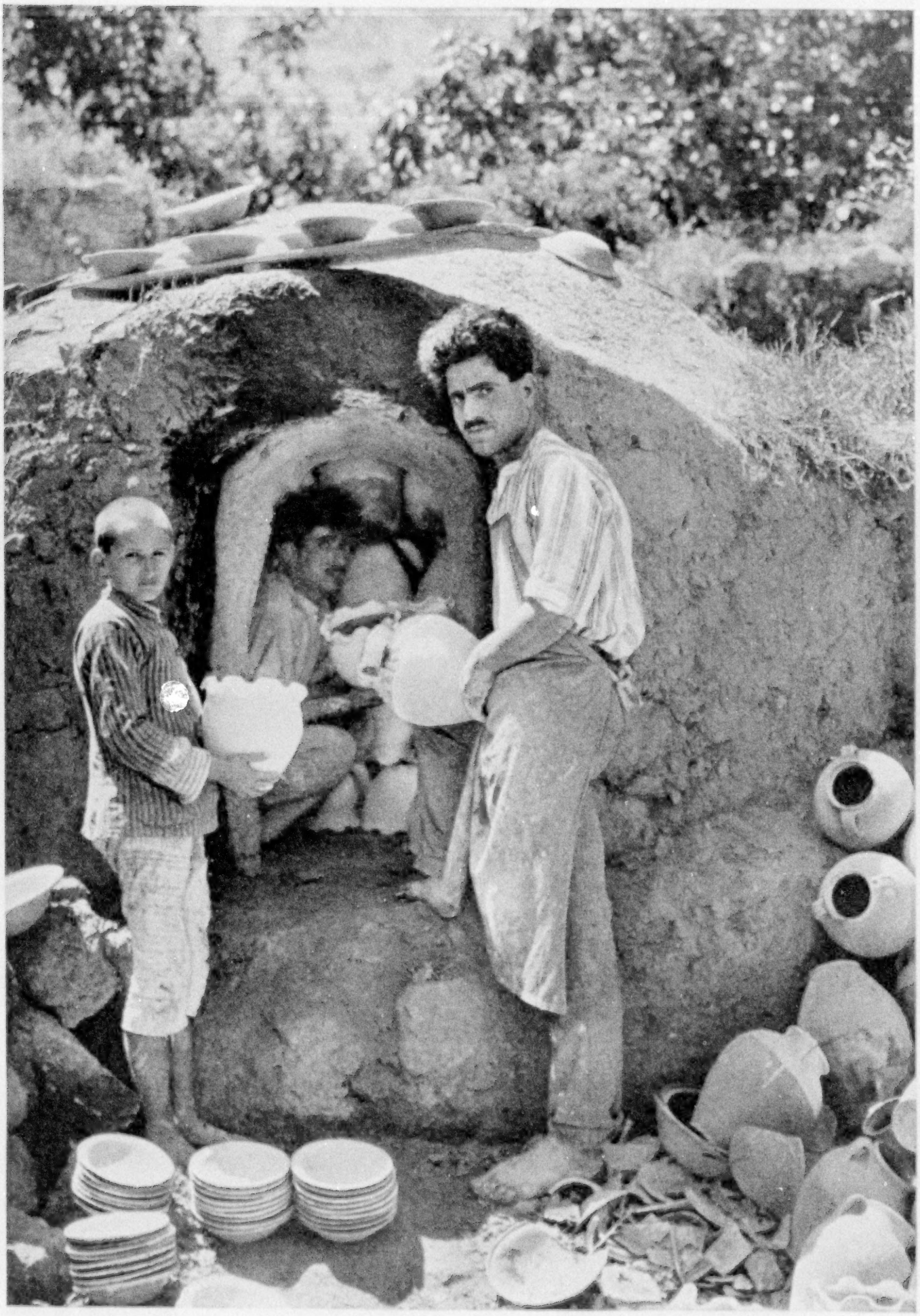
"Bella Paise" is simply a corruption of the words for "sweet peace" or "lovely land," and its setting is worthy of the gem.

The best view is from a hill to the northwest. To the left there is the gently sloping plain, verdant with crops and dotted with trees, with a jade strip of sea making lace on brown rocks, undecided as to whether to ally itself to the deep blue of the sea or to the varied greens of the countryside. Where the slope becomes steeper, there is an idyllic village, with milk-white minarets spearing up through the dark foliage.

TREASURE HUNTERS RECEIVE A THIRD OF WHAT THEY FIND

To the right the gray mountain overhangs steep slopes up which the village has pushed its lemon and orange trees, its mulberries and gardens. The lower bulwark of the town, impressive in its way as the mountain itself, is this massive gold-brown ruin, whose retaining wall rises like a precipice of handworked stone above the fertile fields.

America owes its incomparable collec-



CAREFUL PACKING OF THE KILN INSURES A MAXIMUM LOAD WITHOUT BREAKING

Some modern Cypriote pottery is almost as good in design as that made in Roman times (see, also, page 13). The commonest types manufactured to-day include wine and oil jars holding up to fifty gallons, water jars, and cups for water wheels.

A BREAD MERCHANT OF CYPRUS

The salesman baker peddles the product of his oven from a long, narrow counter which he bears upon his shoulder (see, also, illustration, page 36).

PROVENDER FOR SPANISH CAVALRY HORSES

These are the workers who sack, weigh, and carry heavy bags of carob pods. Instead of a shovel or a pitchfork, they use a sort of wooden trident. Most of the crop goes to England, Spain, France, and Egypt for cattle food, but some is made into sweets and syrups.

MAINTAINING THE ANCIENT TRADITION OF THE CYPRIOTE LOOM

Cyprus fabrics have been famous since the Middle Ages, and even to-day its woven silks and cottons are prized in Europe. The homemade vegetable pigments have, as elsewhere in the world, largely given way to imported aniline dyes.

tions of Cypriote art to Cesnola, who lived at a time when an American consul could defy the Turks and boast of outwitting them. His book makes spicy reading in these days. In the widespread site of Lambousa, to the west of Kyrenia, another famous treasure was found, smuggled out of the island and sold by an Armenian to the late Mr. J. Pierpont Morgan for a sum that still makes Cypriote mouths water.

For treasures found, one-third of the intrinsic value goes to the finder, one-third to the owner of the land, and a third to the Government. But why should a man take a third when he has all? When I heard of a donkey-load of priceless relics having been melted for bullion, I asked the Curator of the Cyprus Museum whether such a thing was conceivable. He replied that it was not only conceivable but probable.

Should the Government pay a high price for antiquities, and so encourage irrespon-

ST. CHRYSOSTOMOS MONASTERY LIES AMID ORCHARDS

In this mountain-side retreat the author rested and dined on honey and cheese after the arduous climb to Buffavento Castle under the guidance of a panting plainsman and a toothless Amazon in heelless slippers (see, also, text, page 11).

sible treasure-hunting, or a low price, and so lose forever clues to the early relations of the civilized world?

Amid the débris of Lambousa rises a monolithic chapel of obscure origin. Taking refuge there during a shower, I shared it with a young man who said that it was a Venus temple, and that the hole in the floor was the tomb of a priest of Aphrodite.

A stone's throw away is the Akhiropietos Monastery, "made without hands," dropped full grown from heaven. An attendant was plastering up a chink.

GEOGRAPHY AND THE PRICE OF LEMONS

Tiptilted Lapithos owes its green freshness to a perennial stream which emerges from a barred cavern in the mountain side. In Moscow I saw lemons selling for three shillings each. In Lapithos the current price of huge, juicy ones is 450 for a shilling. The juice is expressed, bottled without sugar, and kept for a year or two without fermenting. It makes a most refreshing drink, but, at 18 for a cent, lemons are hardly worth picking, and the ground was covered with decaying fruit.

The Mesaoria ends at the Bay of Morphou, which takes its name from, or gives it to, a town with a lion-riding local saint—Mamas. On the outside of the church he is seen mounted on a puppy-like steed.

Kykko, chief of many Cypriote monasteries, stands in a wonderful situation among the pines, with far-reaching views past shadowy valleys to purple peaks. The monks, who entertain many visitors, are proud of their electric-light plant, so remote from any town. In the church, hidden by such curtainlike cloths as are common throughout Cyprus, is an icon which the monks maintain was painted by Saint Luke himself (see Color Plate VIII).

From Kykko to Pedoulas is three hours "cross lots" on foot and six hours by car. The fact that I took the long way around is a tribute to the beauty of the Marathassa Valley, which reaches the sea between the anchorage for Lefka orange boats and copper steamers serving the

American company in a region where copper gave its name to Cyprus or Cyprus to copper—one of those hen-and-egg mysteries that may never be solved. Large quantities of copper ore are shipped every week, some of it smelted from the refuse poorer engineers abandoned many centuries ago.

Lefka, once one leaves the bazaar where ready-made overalls and silken head-scarfs are sold from peddlers' carts, is pure delight. No desert oasis is fairer than that mass of green among the barren slopes. Golden balls gleam in dense orchards scented with lemon and orange blossoms. Graceful palms wave their fronds as if dusting the cloud cobwebs from a blue sky against which the snowy mass of Mount Olympus rises bulkily (see, also, text, page 4).

AMONG THE RUINS OF BUFFAVENTO CASTLE

In the foreground sits the author's guide (see text, page 11).

CYPRUS REFUSES TO WORRY ABOUT HER ROADS

Twice I tried to cross that ridge between Pedoulas and Platres. Cyprus roads are run on the theory of the farmer with the hole in his roof. When it rains they can't be fixed, and when it's dry why fix them? There are 850 miles of excellent motor and carriage highways and 2,000 miles of village roads, but there seems to be no intention of keeping the smaller routes open during the rainy season. They will be reopened in time. But kept open? Why?

Cyprus lacks communications. One travels the village roads by the trial-and-error method. There is no public telephone, and the excellent telegraph service is confined to the main towns. One traveler, tramping from Trooditissa Monastery after a cloud-burst, found a landslide which had buried a bridge under rocks the size of a piano. He reported the matter to the manager of Marango's Hotel in Pedoulas, who said he would write to Limassol. Ultimately the road would be opened. But on two occasions, months apart, I found that road closed, and not one person at either end seemed to know it.

But it was worth while to pass down that valley again. When first I was there the almonds were in bloom, and in the folds between alpinist vineyards there were pink-and-white popcorn balls of bloom.

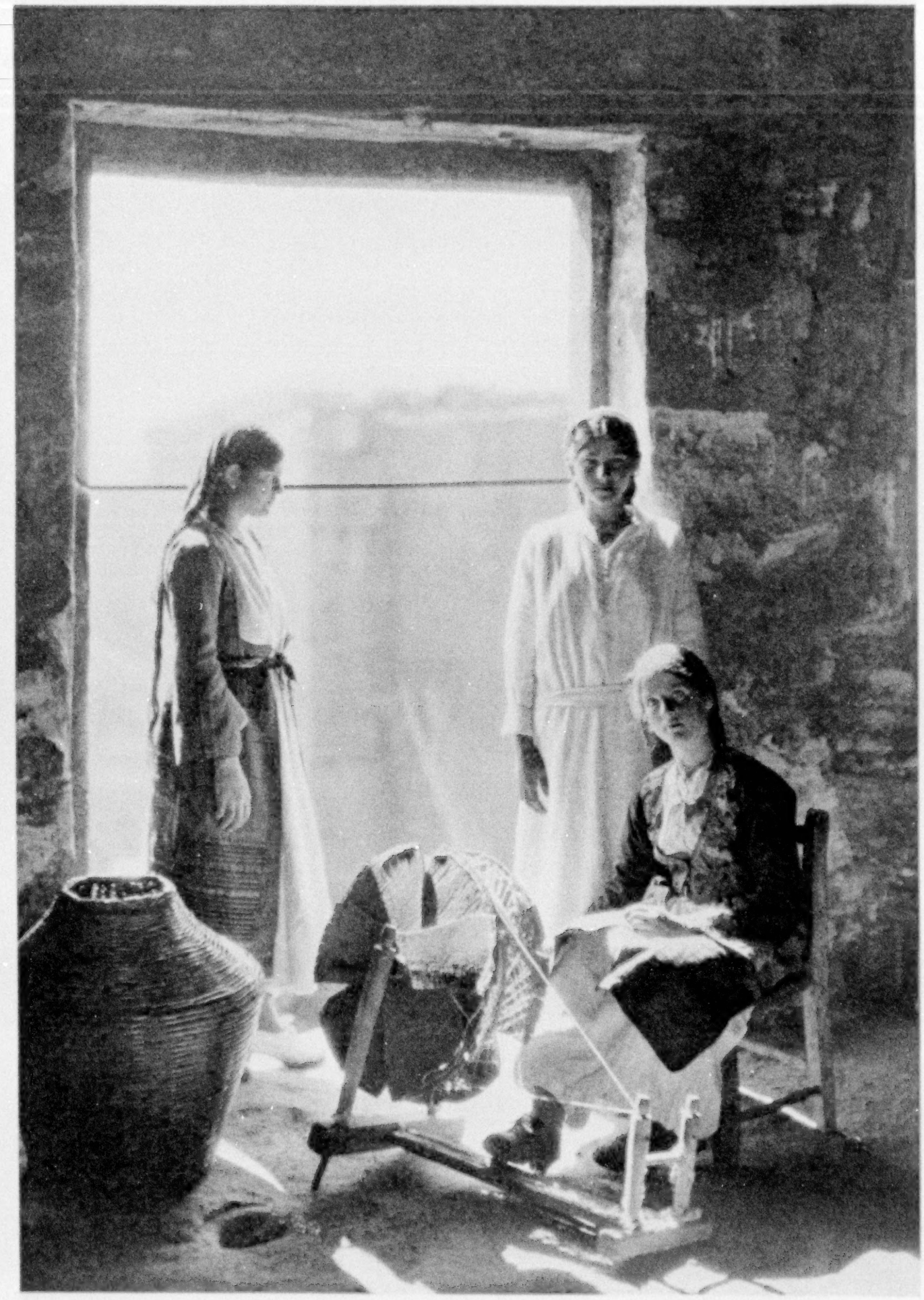
Kalopanayiotis, where there are mineral springs; Moutoullas, made of mud,

BELLA PAÏSE ABBEY IS "AN ARCHITECTURAL MONUMENT TO THE LUSIGNAN DYNASTY"

The 300 years during which this distinguished French line ruled Cyprus were the most brilliant in the island's history. Castles, abbeys, and cathedrals uprose at the command of the Latin kings. Scholars and soldiers flocked here. The island's wealth and luxury amazed all Europe. Boccaccio and St. Thomas Aquinas dedicated works to its rulers. Bella Paise is still the finest Lusignan ruin in Cyprus, its massive rectory hinting truly of the magnificence for which it was celebrated in the Middle Ages. A modern campanile of the usual village type tops the old entrance gateway (see, also, text, page 15, and illustration, page 27).

KYRENIA CASTLE'S GOLDEN MASS DWARFS A MINIATURE HARBOR OF BLUE WATER

Stronghold in time of siege, refuge and residence of kings and queens, this foursquare mass, dating from the first years of the Lusignan Dynasty, has degenerated into a common prison. A boatload of carob pods is putting out from the horseshoe-shaped harbor. The town itself is a popular resort in spring, with fine bathing and excursions to medieval and prehistoric remains near by (see, also, Color Plate III, and text, page 13).



YOUNG CYPRIAN GIRLS AT A RIZOKARPASO SPINNING WHEEL

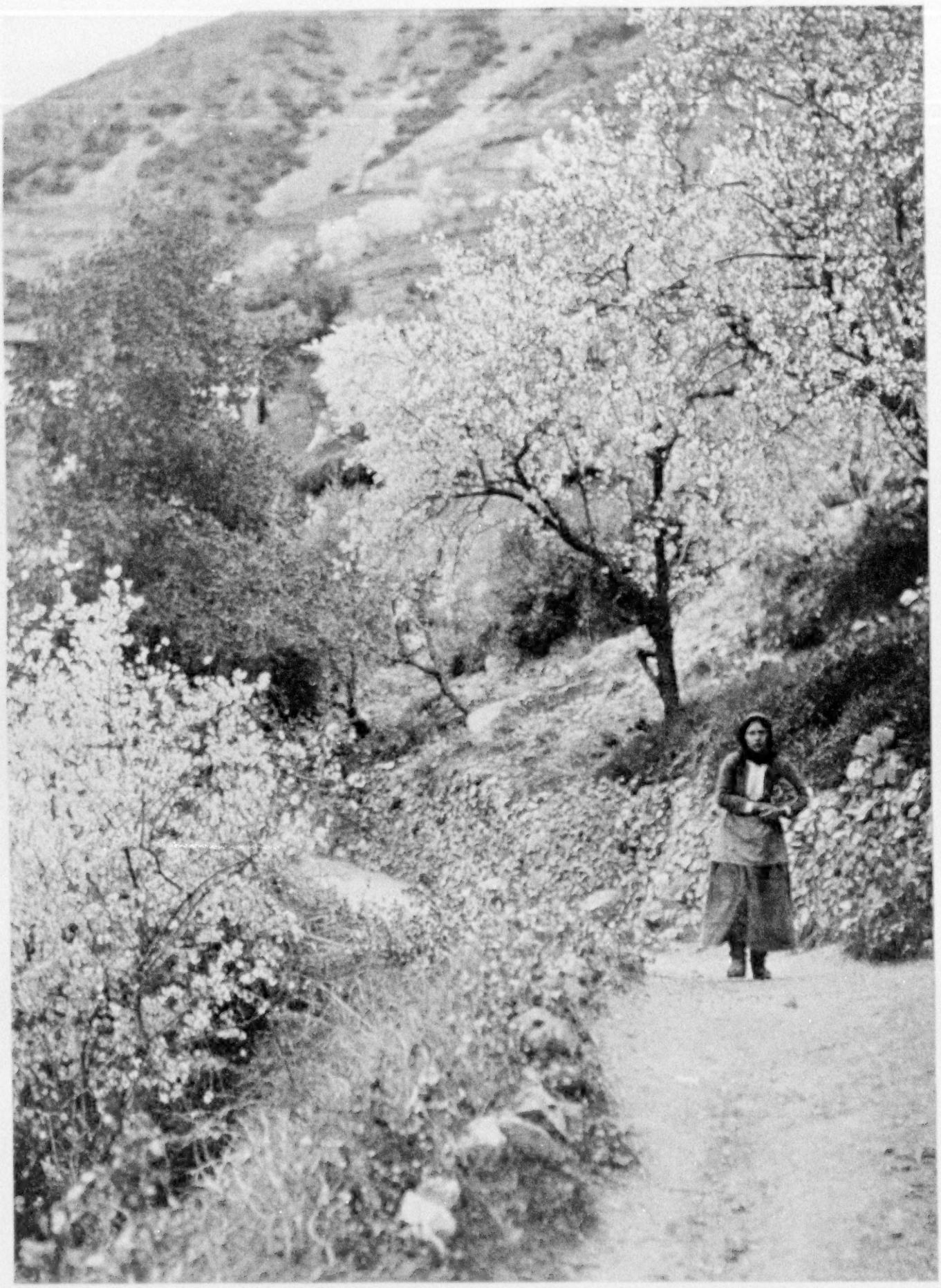
Down in Famagusta, the girls of this north-coast village have a reputation for industry, for a beautiful headdress and costume, and for a queenly bearing (see text, page 8). Their homes sprawl, amid grainfields and orange groves, on the tail of the oxhide which Cyprus suggested to ancient cartographers (see map, page 4).

SECLUSION WALKS THE WAYS OF BELLA PAÏSE'S CLOISTERS

Robbers have torn off much of the tracery of the 18 arches, but time and decay have tinted the graceful fragments with exquisite hues. Previous to the World War the roofs of the cloisters and refectory (see page 24) were repaired.

PLOWING IN THE SHADOW OF THE ANCIENT PAST

Little is known of the origin of the rock-hewn chapel of Ay. Evlambios, at Lambousa. It is the center of a quarry, which has been worked down to the chapel floor, leaving it detached as a monolithic mass. The walls are more than three feet thick and pierced on all sides with tomb receptacles.



SPRING WAVES A MAGIC WAND OVER CYPRUS

In blossom time nearness lends enchantment to this humble village, when the fruit trees clothe its drabness and austerity with a touch of Italy (see, also, page 30).

LIMASSOL HAS TURNED FROM KINGS TO COMMERCE

A tawdry town to-day, devoted to its wine and carob trade, Limassol is mostly a modern settlement around an ancient fort. Yet history lurks in its shadows, in the ghosts of the Lion Heart, and his French princess, who were married here, and of St. Louis of France, the crusading monarch, who stopped by on his way to the Holy Land (see, also, text, page 40).

but with perfumed pathways burrowing through rosy clouds of flowers, and Pedoulas itself were surrounded by trees on which not a leaf obscured the mass of blossoms standing out from hillsides still awaiting other signs of spring.

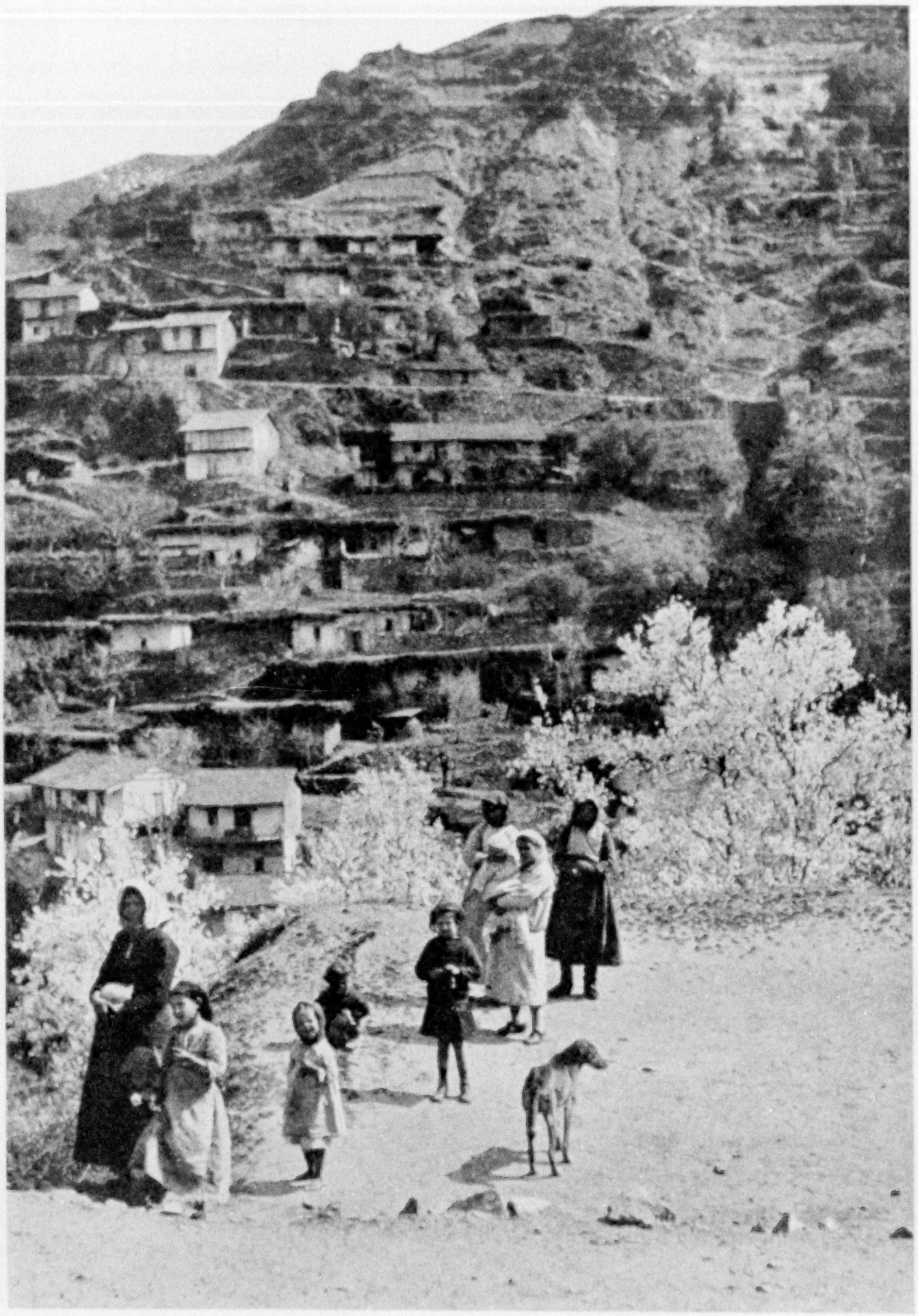
Clouds modified the scene, but every iron roof beamed ugliness. Troodos, shrine of gods and beauty, has a scrofulous tin hotel. Pedoulas waxes prosperous and scars the landscape with roofs that would shame a shamble.

Otherwise it is pleasing enough and has a tiny chapel which is a gem. It was built 6,983 years after Adam, which makes it 453 years old. The interior, lighted only by the north door, is alive with mural paintings, including a more-than-life-size Archangel Michael, in whose honor the chapel was built. On the icon screen, for some mysterious reason, are found the Lusignan arms.

Jeffery finds it hard to believe the church is as old as the sixteenth century, but the priest and the hotel-keeper, reading an inscription over the door, made out that it was built in 1475 A. D., the period from the creation of Adam to the birth of Christ being computed at 5,508 years.

THROUGH A VALLEY WHERE WOMEN WASH CLOTHES WITH THEIR FEET

An even stranger church is that in the monastery of St. John Lampadistes at



MOUTOULLAS, MADE OF MUD, ZIGZAGS UP THE HILLSIDE

This modern village lacks charm except during almond-blossom time, when its perfumed pathways burrow through clouds of bloom (see, also, page 28).

A SMILE LIGHTENS A HEAVY LOAD

Under such conditions of back-breaking toil from sunrise to dark, it is little wonder that few Cypriote women can keep alive the Aphrodite tradition.

Kalopanayiotis. One scrambles down into a narrow valley where the village women wash their laundry by pressing it between their bare feet instead of rubbing it in their hands, and just across the small stream is a huddle of monastic buildings, with the roof of the largest raised at one end as if covering the gridiron of a theater.

The first chapel is Greek, with a Byzantine dome lost under a timbered gable roof which was added later. Its walls are alive with pictures, but since the light was reflected into the somber cavern from a pocket mirror and I dared not use flash powder, they doubtless await a more successful reproduction.

The ceiling of the Latin chapel looks as if it were painted yesterday. The Apostles, framed in gold, stand out from a background of blue in which cherubim of satanic red look placidly out from within their wheeling wings.

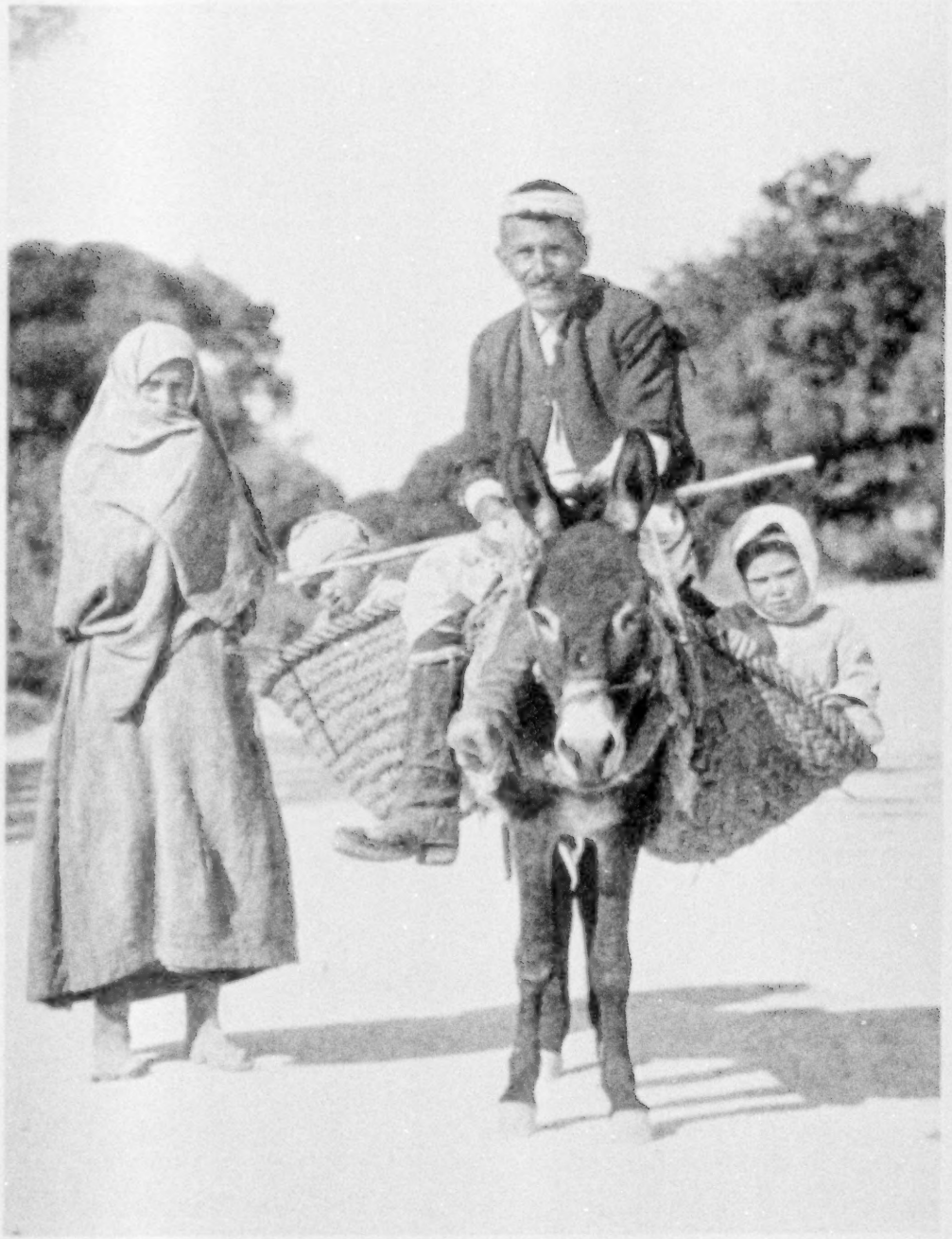
There are other things in Cyprus besides churches, but there is no more commanding feature in the lives of the people. They plow their fields, pick their carobs, gather their olives, graze their placid sheep and destructive goats, raise their oranges, lemons, and pomegranates, tend their vines and bottle their wines with the church as their mental and physical background. Back-breaking toil serves only to win a day of rest more continuous than that which is frequently spent in the coffeehouse, amid the chatter of the bazaar, or in the harvest fields. Irreligion is not evident. Religiously, too, Cyprus is unspoiled.

BIG INDUSTRY IS SMALL IN CYPRUS

Big industry in Cyprus is small. A British company mining for chrysotile asbestos is scarring with slag dumps a whole façade of Troodos. The American copper company, whose engines awakened a nostalgia that was a mystery until I traced it to the locomotive bell; a silk filature at Paphos, and some cigarette factories about complete the list.

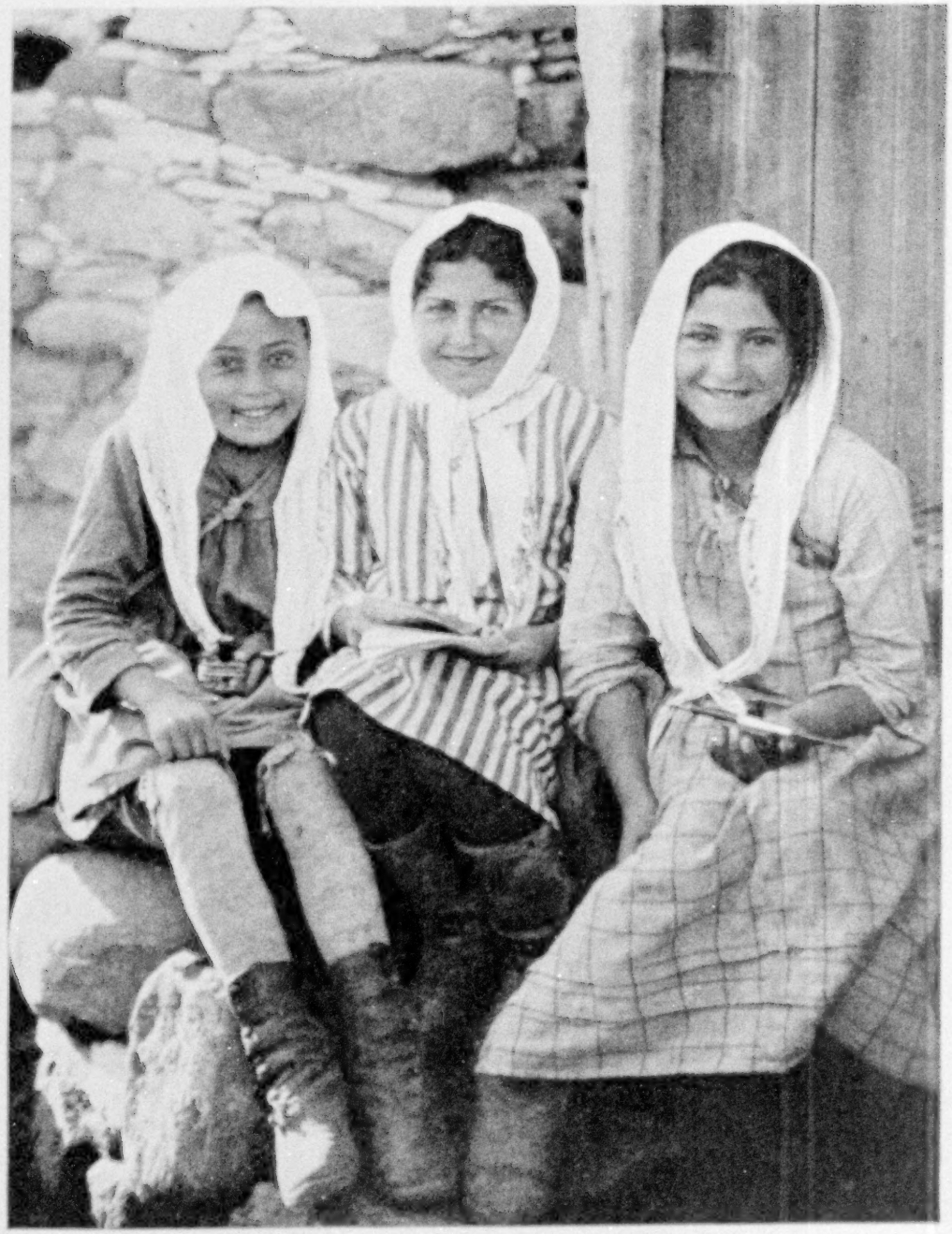
VEILED REMINDERS OF THE DAYS OF THE CRESCENT BANNER

A fifth of the island's 311,000 inhabitants are Moslems. Most of the villages are either wholly Moslem or wholly Orthodox and indicate their nature from a distance by a minaret or a belfry. These women are traveling the road from Kouklia (Old Paphos), anciently dedicated to the cult of foam-born Aphrodite, to New Paphos, where St. Paul struck a sorcerer blind and converted a Roman nobleman (see text, page 42).



WOMEN'S RIGHTS IN THE NEAR EAST

On the road near where Aphrodite worship began at Kouklia (see, also, illustration, page 32), the man is riding, with a child in each pannier, while the woman trudges along half shod.



MOUNTAIN MAIDS FROM PLATRES

Their home town, lying 2,000 feet below Troodos, is a favorite summer resort for Cypriotes, and for Egyptians and Greeks from Egypt.

SHEEP GRAZING NEAR THE KOUKLIA-PAPHOS ROAD

The Cyprus animal is of the fat-tailed species. The flocks are not carefully tended, but are allowed to roam all over the countryside in charge of nomad shepherds.

A TIME-MELLOWED RELIC OF CRUSADING KNIGHTS

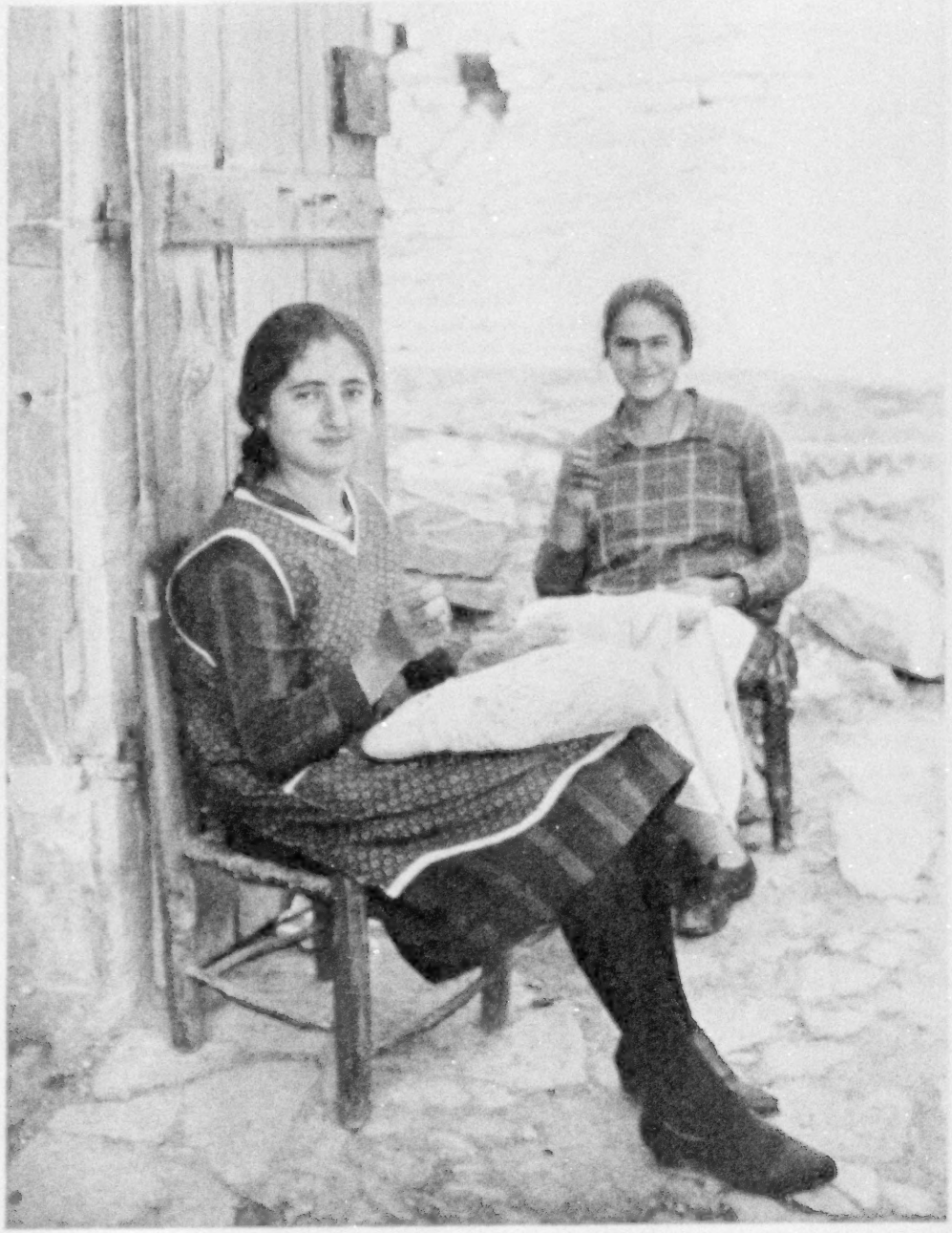
When chivalry was in flower, this square castle, or Tower of Colossi, near Limassol, was the headquarters of the Hospitalers in Cyprus (see text, page 41). In Cypriote folklore its origin is attributed to a king who gave his queen as much land as she could see from this spot. Thereupon the artful woman built this tower, from which she could see the entire peninsula of Akrotiri.

TRAMPLING OUT THE DIRT

The women of Kalopanayiotis do their laundry by working it with their feet instead of their hands. They also club it with a paddle, like those used on the Riviera.

SOLITUDE BROODS OVER PANAYIA-TOU-KAMPOU

This little Byzantine chapel, constructed or restored in the 16th century, is now deserted by the townsfolk of Khirokitia except on three holy days of the year. Near the village, which lies between Limassol and Larnaka, the decaying feudalism of the Lusignans under "good King Janus" went down before the Egyptian Mamelukes in 1426.



FLYING NEEDLES BRING PROSPERITY TO LEFKARA

Traveling venders have popularized in Europe and America the Cypriote's embroidered linen and cotton and cleverly designed lace.

AN ITINERANT CYPRIOTE BAKERY

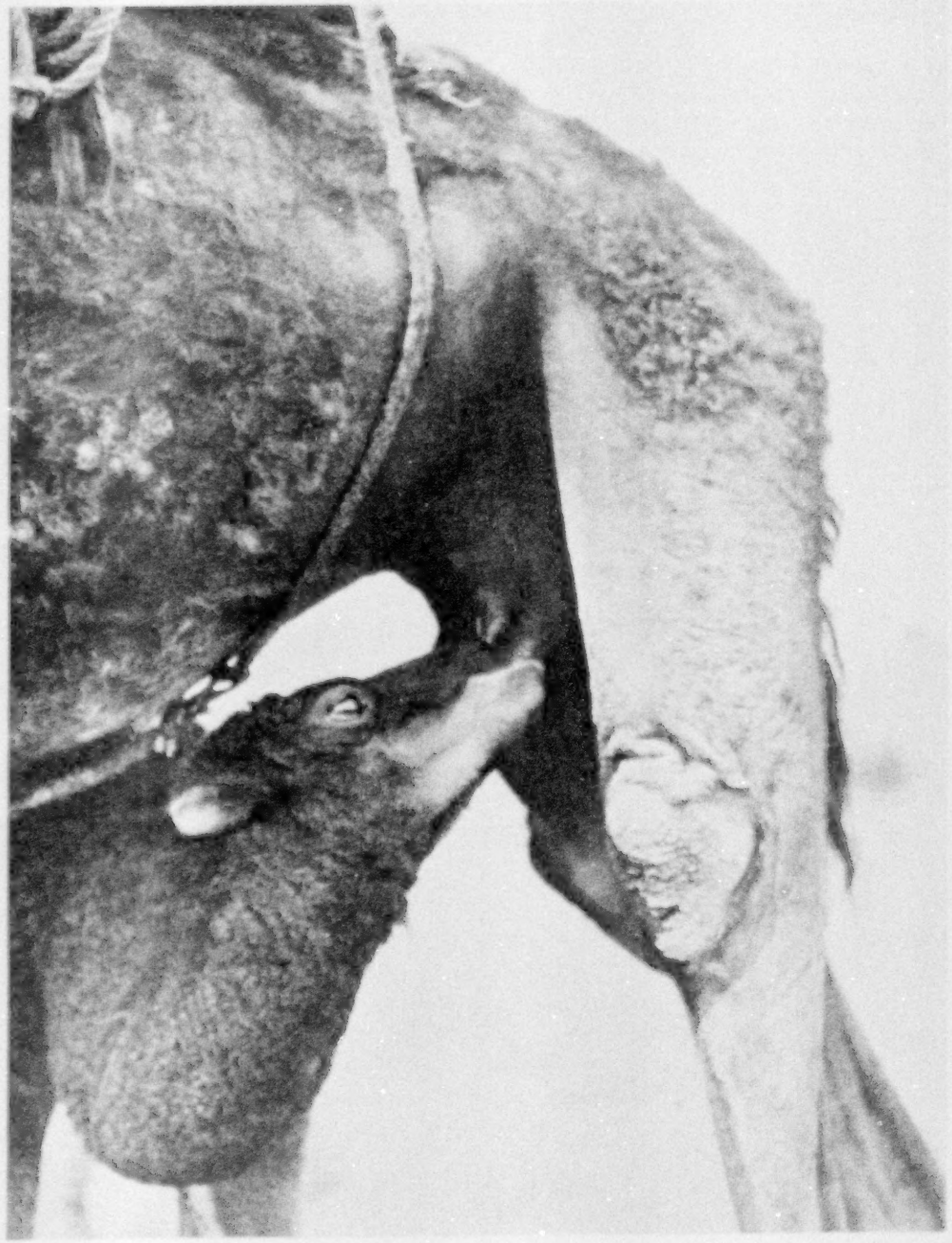
Neither dust nor flies worry this seller of breadstuffs, who balances an uncovered tray of fancy wares upon his shoulder.

SUPPLE FINGERS MAKE LIGHT WORK

After the bottom of the basket is partly finished, the uprights are tied together and the sides are woven; then the handles and edging are added. The finished baskets are carried by the cartload to Famagusta and unloaded at the various orange-sorting and packing sheds, where they are filled with golden fruit for shipment (see page 8).

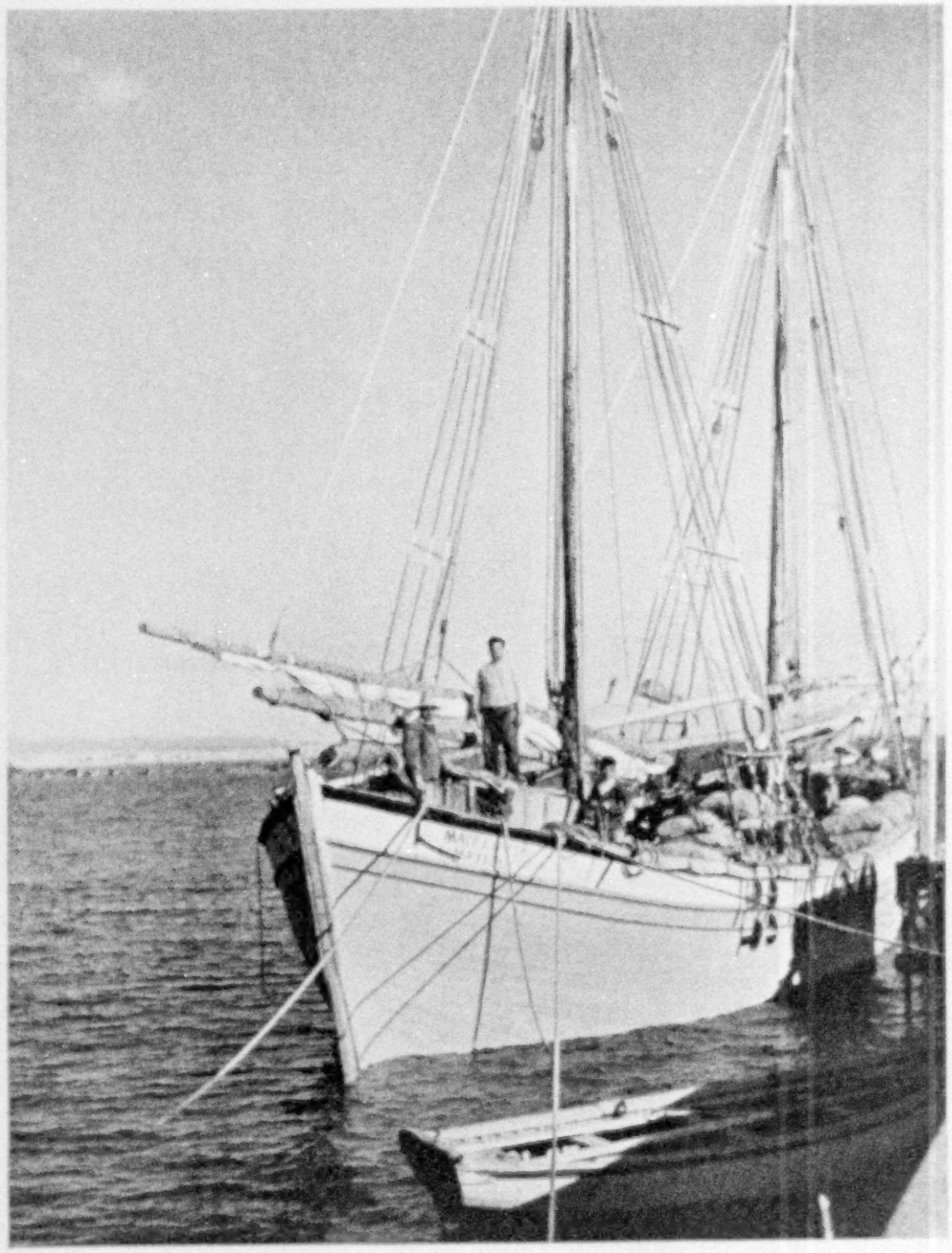
WEAVING BASKETS FOR FAMAGUSTA ORANGES

First the rushes are cleaned of their outer leaves or fiber, then split into four parts. The uprights for the basket are next laid out, spoke fashion, on the ground and the weaving begun. The industry centers at Livadhia, a suburb of Larnaka, and the rushes come from Mavrovouni, a near-by village.



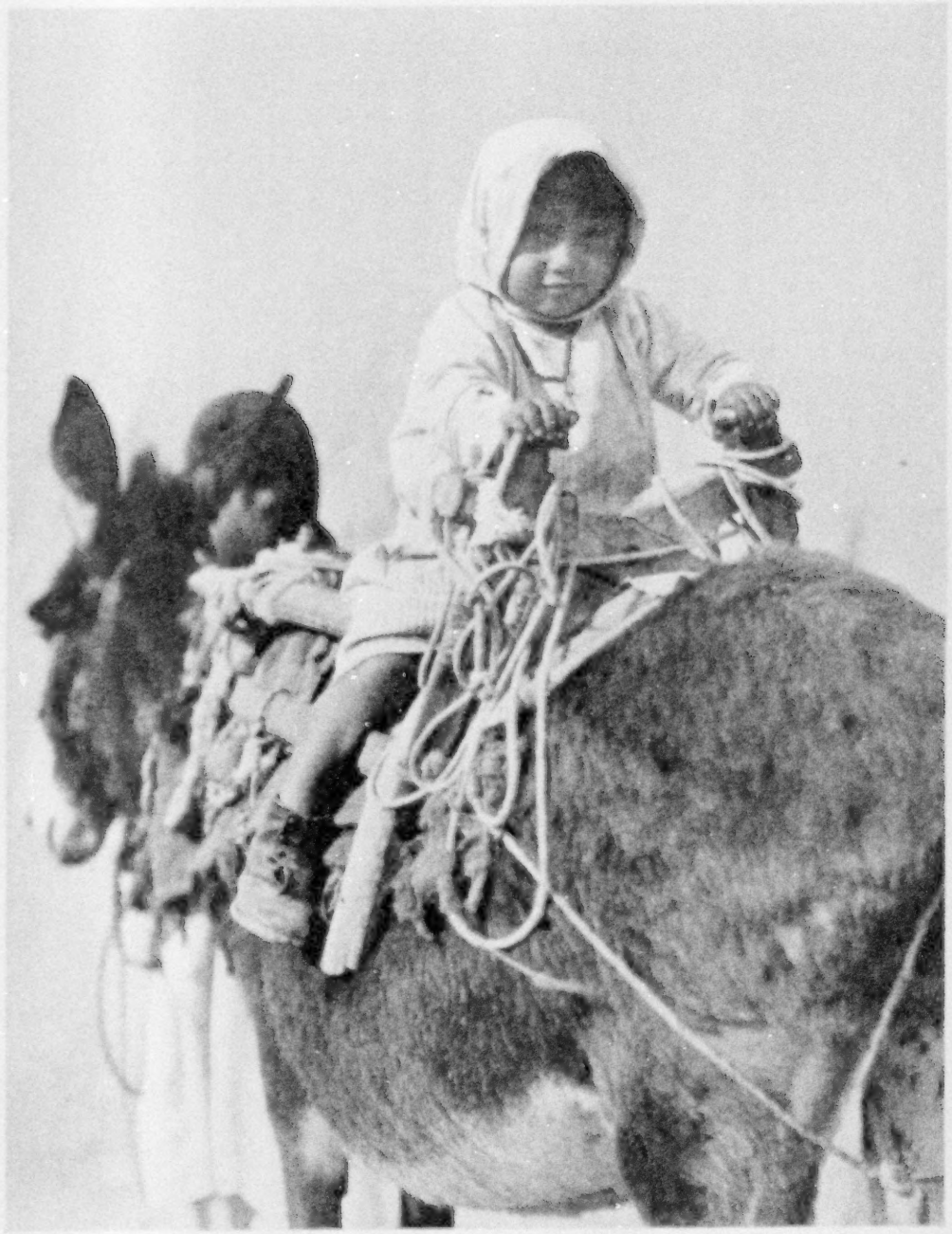
SNATCHING A LUNCH WHILE THE CARAVAN HALTS

The workaday, but not the trotting, variety of the sturdy camel is used in many parts of Cyprus, particularly in the hills, to transport carobs, timber, and flour. It has been known in the island from at least 1340, but road improvement is gradually lessening its importance in the transportation scheme.



PAPHOS BELIES THE MAGIC OF ITS NAME

Though one pursues such a name across wide seas, the spot associated with St. Paul possesses not one contemporary hook on which to hang inspiration. "A small coasting boat, the *Mayflower*, smacked of Puritan more than of Paul, and her captain, in English, begged the photographer to 'shoot'" (see text, page 43).



NAVIGATION FROM A NEW ANGLE

Cypriote children ride backward on the donkeys, since the handlebars of the saddle are to the rear.

A WAGON LOAD OF WICKERWARE

These orange baskets are on their way to Famagusta from Livadhia, where they were woven.

MORE FAMOUS THAN SILK OF CYPRUS IS ITS LACE AND NEEDLEWORK

Lefkara, center of this industry, probably has more bad eyes and spectacles than any other town, for women and girls sit in bright sunlight in winter and in shadowy courtyards in summer, straining their eyes over blindingly intricate work (see, also, text, page 43).

Asbestos mining goes back almost as far as does that of copper. The myriad uses of the mineral whose raw state is like a fire-opal with fuzzy white threads in it are mostly new, and the historic use no longer obtains. It once formed the sacks in which the bodies of Roman patricians were burnt.

From the mouth of the mines an aërial tramway drops straight away to Limassol, but the much longer road looks as if Will Rogers had dropped it to take a curtain call.

Limassol is a modern port. Even as recently as the twelfth century the vessels anchored at Amathus. There is no proof that the fort is that old, but the chapel is shown where Richard the Lion-hearted was married to the Princess Berengaria of Navarre (see page 29).

But tawdry Limassol gave me one memorable urban view. It was the full moon of Ramadan. The minarets wore crowns of lights. Leading into the town is a narrow street, across which several ghostly arches stretched their phantasmal silhouettes against the velvet sky.

At the far end the street passed under an archway framing a window in which a single candle gleamed. Beyond the second arch and to the right was a Moslem restaurant, brightly lighted after the day's fast.

A dark figure would add interest to this otherwise lifeless scene, and having opened my shutter I went and sat down on the step, pulling my shapeless hat low over my eyes.

The exposure had run about half the appointed time when the kindly Moslem saw me and came, bringing a chair. Without changing my position, I tried to refuse; but it was no use. When a Turk decides to be hospitable, one must play the guest. The whole thing had to be done again.

An hour under those pale arches bowed against the velvet sky and framing the

THE CYPRIOTE SONG OF THE TROUSER

The old woman is spinning in front of a dyeshop hung with hanks of yarn dyed deep blue for the men's "romperlike" trousers, whose full seats must be tucked into the belt for cross-country walking (see text, page 6).

twinkling lights of the mosque may have resulted in no adequate photograph, but the memory and the friendship with the old Moslem remain. That moonlit street that night was a dream of fairyland, only to be dissipated at dawn.

THE DEATH OF CABARET LIFE IN LIMASSOL

By daylight, "Zigzag Street" interests because its name is obvious; "T. P. O'Connor Street" because the reason for its name is not.

Limassol has a café of the vulgar, cosmopolitan type. "The aristocracy dance there," said a pretty but poor girl whom my shoemaker summoned as interpreter. But it was a tarnished aristocracy.

Crude satanic caricatures plastered the walls. On the stage a three-piece orchestra shook familiar music to protesting death. Bootblacks wearing Apache caps strolled in and out. Dogs crossed and recrossed the tiled floor, nosing out confused trails. Three dancing girls, their stage act finished, did their best to keep the place from going to sleep.

Beside their table sat four hatted peasants, iron shod. They cast furtive, fearful glances toward these strangely friendly entertainers, intrigued by the products of silkworm and perfumer but safeguarded by ungallantry.

On my return to Limassol a billiard table held what had been the dance floor, and the café crowd, sitting outside along the bund, did not look so boorish with their hats on. But they had relapsed from jazz to the classics. The cabaret experiment had evidently wilted away with the heat.

From Limassol one goes west, over the finest road in the island, to the Old Paphos of Venus and the New Paphos of Paul. Colossi, square tower of which the Order of St. John in England holds part ownership after six centuries; Curium, colony of Argos, over whose ruin-cluttered site and its "Curium Treasure" a legal battle long raged; the Temple of Apollo, amid whose scarcely distinguishable ruins gorse was growing and a herd of horses grazed—these historic sites bring one to a bold chalk headland. As I saw it from the hill of Curium, it seemed to lack "hu-

LEISURELY THRESHING IN THE OUTSKIRTS OF LARNAKA

The farmer sits on the sledge and the oxen move slowly, for a man who can sit down to his task is not as liable to use the whip. The children act as makeweights.

man interest," for all its dazzling beauty cutting into the blue.

But in the Old World one cannot walk through a thicket or along a beach without tangling his feet in legend or history. It was from this high promontory that persons who touched the altar of Apollo were cast to death on wave-washed rocks. A bishop of Curium who jumped to self-martyrdom was later found with a crown on his head and a palm branch in his hand, miraculous passports to a Christian burial.

PHOTOGRAPHING MODERN APHRODITES IN VEILS

The site of the Aphrodite temple is at Old Paphos, now Kouklia, a humble village with a jumble of walls that has long defied savants to unravel its mystery. There are megalithic remains in black stone and many solid cubical tributes to Venus graven with dedications to the goddess.

The deadness of the ruins was accentuated by the flame of a red robe on a Moslem porch. The costume, at that distance, seemed worthy of Aphrodite herself, in her more sheltered moments.

Religion again, but touched with self-interest. Could the woman hide her face in her veil? She could. Could she have a companion beside her? I agreed. Followed much fluttering, as if a connoisseur were about to disclose a treasure. But one thing was final. This veiled Venus positively would not go to the Venus temple.

There was an old sarcophagus at hand, and against that my modern Aphrodites stood, improved by their veils. A little girl, coming up, added so much to the pulchritude that after she arrived I did not have the courage to save a plate and leave the picture untaken (see lower Color Plate IV).

New Paphos, so called because it was not founded until Agapenor was blown ashore here on his return from the siege of Troy, is the place where St. Paul overcame the sorceries of Elymas with better ones and converted Sergius Paulus to Christianity.

Baedeker says: "The old streets of the town are bordered with whole rows of houses with Gothic portals, now concealing nothing more than one or two wretched dwelling rooms."

HARVEST TIME IN MOSLEM GRAINFIELDS

The big-wheeled carts, piled high, must be built narrow in order to pass through the winding streets. The palm-fringed road on the other side of the field leads to the salt lakes and to the tomb of the Prophet's relative, Umm Haram, at Larnaka (see text, page 45, and Color Plate VII).

Gothic portals to nothingness! The idea intrigued me as fancy magazine covers do; but after an hour spent exploring wretched alleys my camera was still in its case, the "Gothic portals" still at large.

Paphos! One pursues such a name across wide seas. Once there, not one contemporary hook on which to hang inspiration can be found. A small coasting boat, the *Mayflower,* smacked of Puritan more than of Paul, and her captain, in English, begged me to "shoot" (page 38).

Silt, mosquitoes, and malaria, the eternal triangle of seaside calamities, drove the town up the hill to its present site at Ktima, in whose suburbs there is a small silk filature.

LEFKARA, FAMOUS FOR FINE LACE AND BAD EYES

More famous than the silk of Cyprus is its lace and needlework. Lefkara, center of this industry, leads the world in one unenviable way. There must be a larger proportion of bad eyes and spectacles in Lefkara than in any other town. Women and girls sit in the bright sun in winter and in shadowy courtyards in summer straining their eyes over blindingly intricate work (see pages 36 and 40).

Cyprus is poor, but were it not for its women it would be bankrupt. By skimping, they can earn enough to have one Sunday dress, worn for a few hours a week. But the men resort to coffeehouses, where they can sit and curse the Government without disturbing the women at their work. On turning a corner, in no matter what village, at no matter what hour, one can always count on having to wait until the gentlemen's club moves its chairs.

Thanks to the women and their dogged eyesight, Lefkara is prosperous. From a distance it looks like a paradise; but one goes through a purgatory to get there. The road thither would disgrace a pressure ridge in the Arctic ice. Lefkara man power, applied as persistently as Lefkara woman power is, would soon make that rough road a boulevard.

At Larnaka a "T" of cement and iron

LEDRA STREET LENDS AN AIR OF MODERNITY TO THE CAPITAL

Despite narrow thoroughfares with overhanging balconies, some parts of Nicosia have an up-to-date flavor, and for this reason it looks down on deserted Famagusta and provincial Kyrenia. The balconies not only protect the streets from the savage summer sun, but also from winter rains.

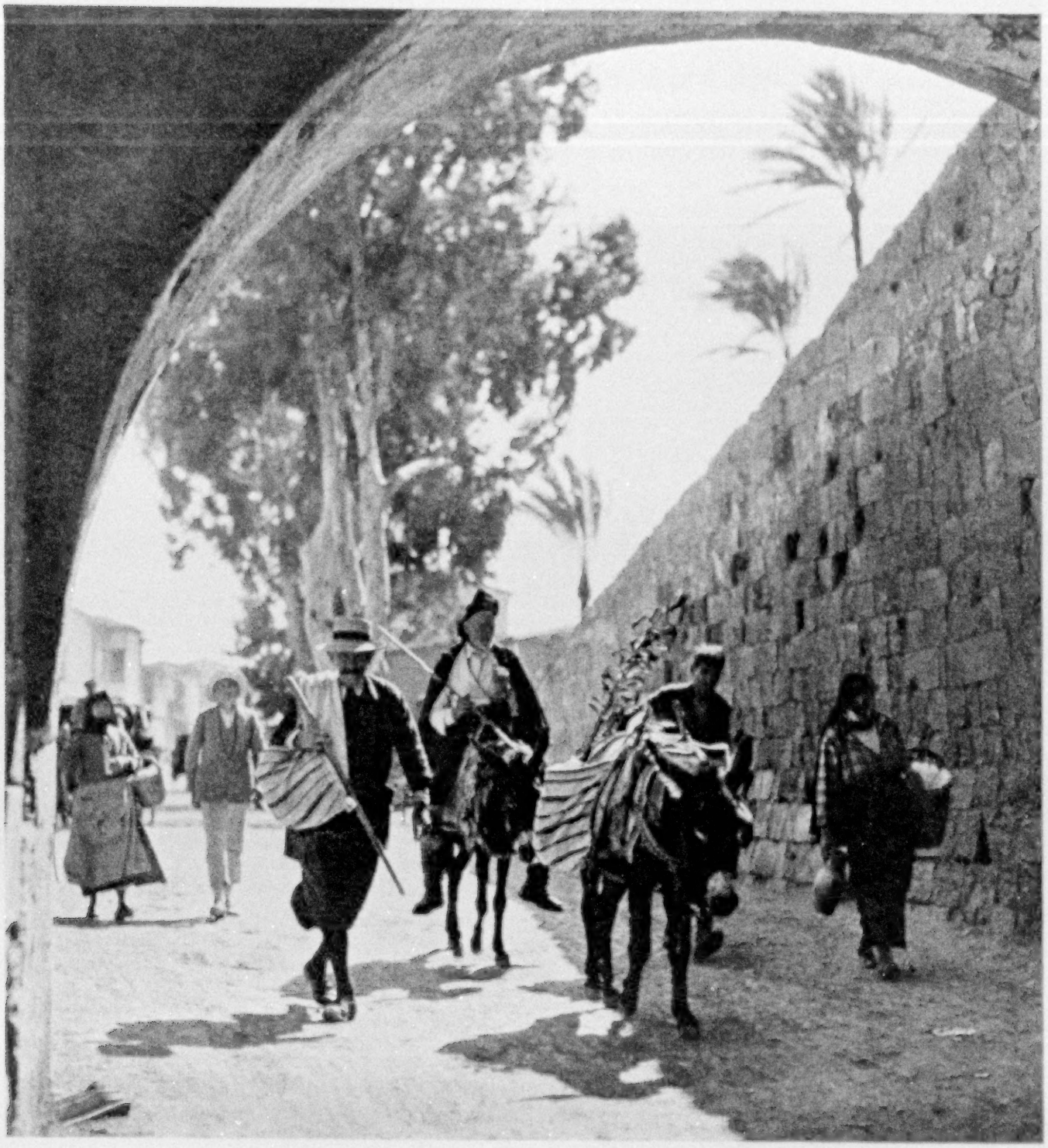
reaches out toward the island's principal anchorage; but the American automobile, so potent that the direct road from Famagusta to Nicosia has to be left in disrepair to give the toy railway a chance, also competes with stout sailboats that carry goods and passengers from steamer to shore.

Forty tennis, hockey, and soccer players of the American Academy at Larnaka, returning from contests with the preparatory department of the American University of Beirut, were traveling "deck" on the ship on which I took my third trip to Cyprus. As the steamer was to proceed to Larnaka, I was surprised to find them disembarking at Famagusta.

"It costs us a shilling and a half a head to land in boats at Larnaka and half a shilling for every suitcase. We can land direct on the pier at Famagusta and take motor cars to Larnaka for the same price."

At Larnaka three boats would have carried them the half mile to shore. It took eight motorcars, each traveling 25 miles, to get them there from Famagusta. Two hundred car-miles against one and a half boat-miles! Yet the cars won. As in Phœnicia, the automobile has largely displaced the galley, in which commerce was born.

Excepting the capital, Larnaka is the liveliest city in Cyprus. But its chief in-



THE KYRENIA GATE FRAMES THE BATTLEMENTS OF NICOSIA

Camels, oxen, and an occasional motorcar are good enough in their way, but the Cypriote could not get along without his donkey. These patient little Cyprus beasts, famous as far away as India, patter back and forth between villages and towns, their sturdy backs laden with the master, his goods, or both. Sometimes their loads vary in weight from 150 to 225 pounds and more.

terest lies in tombs. Most famous of all is that of Umm Haram, a relative whom Mohammed called "Honored Mother." She, "falling from her beast, broke her pellucid neck and yielded up her victorious soul, and forthwith in that fragrant spot was buried."

TOMBS ARE THE CHIEF INTEREST OF LIVELY LARNAKA

All but the minaret and the dome of the attendant mosque are hidden by greenery, and the place is one of rare charm. The handsome *hodja*, who would be handsomer still if he would read and heed pearl-mouthed tooth-paste advertisements, let me into the dimly lighted tomb-chamber, almost filled with a tent of green silk.

Above the tomb is a rough rock whose edges can be seen from all sides. Archeologists say it is a part of one of the three prehistoric megalithic structures in the island, but the hodja takes no cognizance of the hidden uprights of the dolmen. Ac-

cording to him, the 70-ton rock mysteriously floats in the air.

"But what holds it up?" I questioned.

"Who am I to instruct one wiser than myself?" he asked. Then came the oriental counter-question, "What holds up the world?" My Arabic failed me. I tiptoed back across the bright rugs in the cool mosque, out past pomegranate blossom and iris and geranium, into the heat which turns the shallow lake into an annual salt harvest. With 70-ton rocks floating in the air, one does not choose to be irreverent.

There are Christian tombs in Larnaka—tombs of young merchant adventurers who built up the English Levant Company twenty years before its more famous offspring, the East India Company, was formed.

Each had to belong to the Church of England and cease work on Sunday. For a while, in their loneliness, they were permitted masquerades. "When young gentlemen went about at night dressed in female attire," even the masquerades were stopped. A merchant adventurer must not look or act like an adventuress.

Amid the tombs of merchants, consuls, and missionaries, one fact stands out: the people buried there died in the summer heat and they died young. Ion Ken, 21, died July 12; William Ken, 29, died July 24; Helena Kerr, 11 months, died July 3. "Ere sin its iron chain had forged, the captive was set free," reads the baby's tombstone.

The graveyard is on the grounds of the Church of St. Lazarus, who, having been raised from the dead at Bethany, was buried in Larnaka, moved to Constantinople, and then to Marseille. But Marseille refuses to have her corpses fourth hand, and her tradition is that Lazarus inhabited catacombs there.

NICOSIA BOASTS OF ITS PROGRESSIVENESS

A neighbor of Larnaka is Livadhia, which Jeffery calls "perfectly modern and uninteresting." "Modern" and "uninteresting" are relative terms. During the orange season the whole town makes baskets. The rushes from Mavrovouni are quartered by pushing a cross of smaller bits between the fibers from one end of the bamboolike stick to the other. A cartload of baskets is almost enough to block a road (see, also, illustrations, pages 37 and 38).

The circular walls of Nicosia, with eleven bastions, form the hub of Cyprus. The streets are narrow, with overhanging balconies but a modern flavor. Sapho, Euripides, and Aristophanes streets lure one to the anticlimax of a cinema showing "The Tiger's Teeth." The subtleties of ancient Greek drama are no longer in demand. Mystery, rushing motors, bathing suits, and a close-up kiss now meet the demands.

The young folks of Nicosia are not "unspoiled." They don't doff their hats to the foreigner; they don't wear rags; they are independent and awkwardly spank themselves in an obscure measure known as the Black Bottom. Nicosia is progressing. Neat suburbs with attractive homes are growing outside the crumbling walls. It looks down on deserted Famagusta and provincial Kyrenia. And its condescension is comic.

In the Armenian church the floor is made of medieval tombstones, which protect the dusty dead and keep alive the fashions of the days of old when knights were bold and ladies were demure.

In the attractive museum are such treasures as have been saved from the spoiler: pottery that gives the clue to ancient life, smiling terra-cotta figurines connected with pagan worship or burial, a priceless mace of a forgotten king, necklaces of soft gold that touched smooth throats when Tutankhamen ruled in Egypt and Cyprus was in the Late Bronze Age.

The cathedral of the Latin Primate, once mellow with hangings harmonizing with the vestments of its priests and dramatic with the display that the Crusader mortised to his religion, is now a mosque, its ghostly whiteness vivified by the green and gold plaques, the polychrome mihrab, and shaggy Anatolian rugs, whose brightness here softens the stark scene as the carpets themselves soften the tombstone floor to the feet of the faithful.

Since their prayer pole is southeast of Nicosia, a diagonal line, dividing the nave, points the Moslems toward Mecca. The mihrab, or prayer niche and spiritual compass, is tucked into the east corner of the south transeptal chapel.

As I stood there, exposing a color plate for half an hour, there was ample oppor-

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DWELLERS ON THE ISLE OF VENUS

It was with difficulty that the author persuaded these ultramodern daughters of the town headman of Lefkoniko and the village school-teacher to wear outmoded costumes of Cyprus—one of the fast disappearing charms of the island. Iphegenia (If-ee-gaiń-ya), who is standing, is 17, and her companion 16.

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A CYPRIOTE PRIEST PAYS A FRIENDLY VISIT

With the Easter wreath still adorning the doorway, a young girl of Yialousa, at the left, invites the holy man and a companion from Karpas to have their pictures taken in her side-wall garden.

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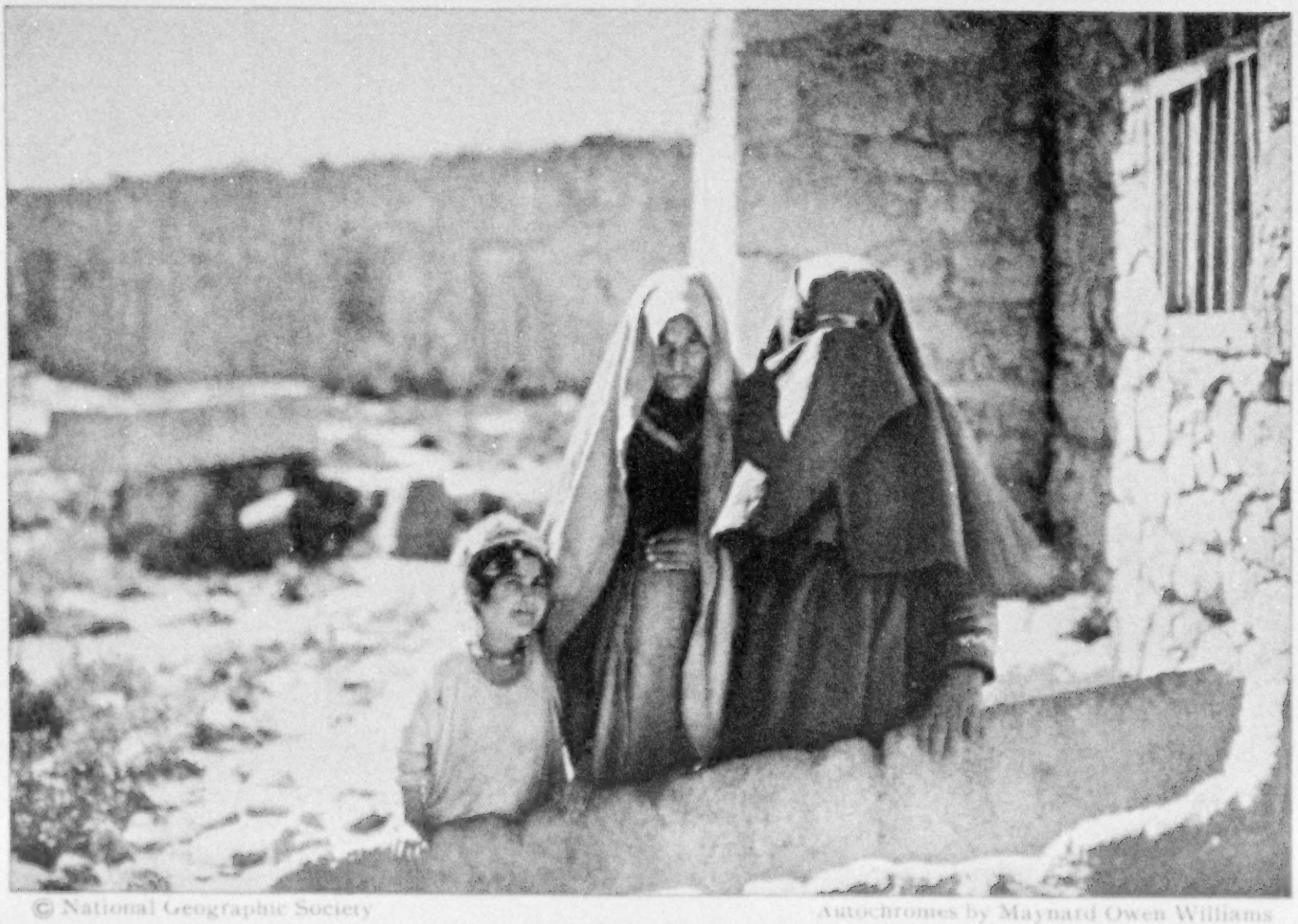
FISHING FLEET AT ANCHOR IN KYRENIA HARBOR

Situated on the north coast of the island, Kyrenia is a favorite summer holiday resort. Overlooking the harbor are the famous Bella Paise Abbey and the castle of St. Hilarion, both rich in medieval historical associations.

HELENE SITS AMONG THE POPPIES

"To-morrow I must work on the road, breaking rocks," replied this twelve-year-old girl of Rizokarpaso, when asked if she could pose for her picture again the next day.



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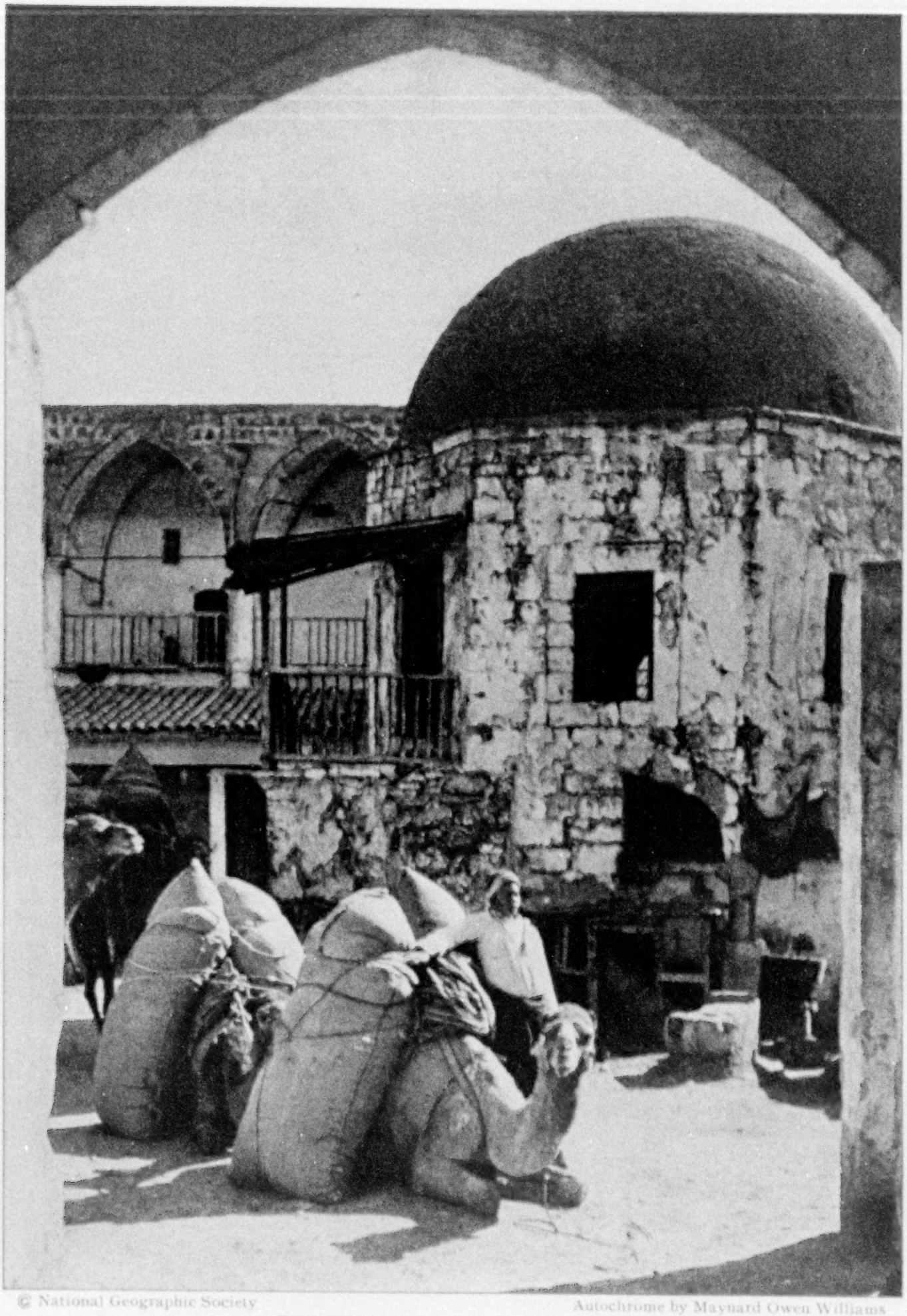
MOSLEM WOMEN OF CYPRUS

At Kouklia, or old Paphos, the site of an ancient temple to the Goddess of Love, this trio stands beside a broken sarcophagus which, after many centuries, has given up its dead and now serves as a watering trough.



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THE INN COURTYARD AT NICOSIA

The capital and metropolis of Cyprus owes its interest for the traveler not to its movies and its tea shop, but to the moldering past—its cathedral dating back to the thirteenth century, and the ruins of its walls, and of its castle, which was being rebuilt in 1211.

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A PRELATE OF THE KYRENIA HILLS

He presides over a monastery at Myrtou dedicated to Saint Panteleimon, patron of physicians.

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BEAUTY AT THE BAKERY

This is practically the only distinctive costume to be found in Cyprus to-day (see also upper Color Plate IV).

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THE HOLIEST MOSLEM SHRINE IN CYPRUS

Here Umm Haram, a close relative of the Prophet, fell from a donkey, broke her neck and was buried. Cypress, palm and eucalyptus add their varied color notes to that of the dome of the mosque-tomb. At the right are the still waters of the evaporation tank or salt lake beside which the shrine stands. The lakes at Larnaka are seven feet below sea level and each winter the sea water is allowed to fill the basin, which in summer becomes a parched plain, encrusted with salt.

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DEACONS IN THE COURTYARD OF KYKKO MONASTERY

In summer, many visitors stay at this hospice and the deacons, or priests, are very proud of the electric lights which illuminate the monastic rooms and guest chambers.

tunity to study the life about me. In one corner, squatting on soft rugs, a dignified group discussed the Koran. Creeping into the field of my camera came a blind man, who sat swaying back and forth, repeating his favorite chapters of the Koran.

A SLICE OF CYPRUS LIFE IN THE SHADOWS OF A MOSQUE

In by the back door crept an old, bent man, his face mapped by many an Odyssey. He wore a faded tarboosh wrapped with a strip of spotless white cloth figured with blue. A ragged jacket only partly confined a tattered shirt. His black, baggy trousers seemed to have been made of those cast-off umbrella covers with which oriental bootblacks give a final ingratiating polish to one's shoes.

Beside me was the handsome *mullah*, a prince of his faith, comparing notes on Damascus, Jerusalem, and Samarkand or trying to make up by courteous gesture for any adequately common tongue. His raven robe and snowy turban were immaculate. Yet the ragged old man showed no embarrassment.

He advanced to his favorite seat on the soft carpet, blindly took down from its familiar shelf a time-browned book more tattered than his dress, found his place by means of a thumb-worn marker, and turned his almost sightless eyes to the scripture he had come to read.

Others came from the fountain where they had washed, ready for prayer. It was high noon, but the mullah, understanding my work, made no sign of impatience. As I stepped past the fine old portal, into my shoes and out into the heat and noise of the bazaar, the muezzin, overhead, intoned the call to prayer. Here, too, was a something still unspoiled.

Aphrodite's isle, conquered by Thothmes and Cambyses; given by the lovesick Antony to Cleopatra; preached to by Paul and Barnabas; seized by the Lion-hearted to avenge an insult and sold within the year; fled to by Crusader refugees when, at Acre, all was lost; brought to its zenith by the Lusignans; conquered by the Turks; now occupied by the British for half a century—Cyprus awaits the visitor in its sheltered nook of the sparkling sea, a refuge for those who turn from their own crusades to pause in a brief recessional.

As one leaves the tumult and the shouting of the bazaar to seek the quiet of the cool and restful mosque, so may one go to Cyprus, still unspoiled for those who savor life.

THE CARAVELS OF COLUMBUS WITH THIS NUMBER OF THE NATIONAL GEOGRAPHIC MAGAZINE

The third of a series of five mural paintings recently completed by the noted American artist, Mr. N. C. Wyeth, for the National Geographic Society Buildings in Washington is reproduced as a color supplement with this number of the National Geographic Magazine. The first of the series, "The Discoverer," appeared as a supplement with the March number, and the second, depicting Commander Byrd at the North Pole, appeared in May.

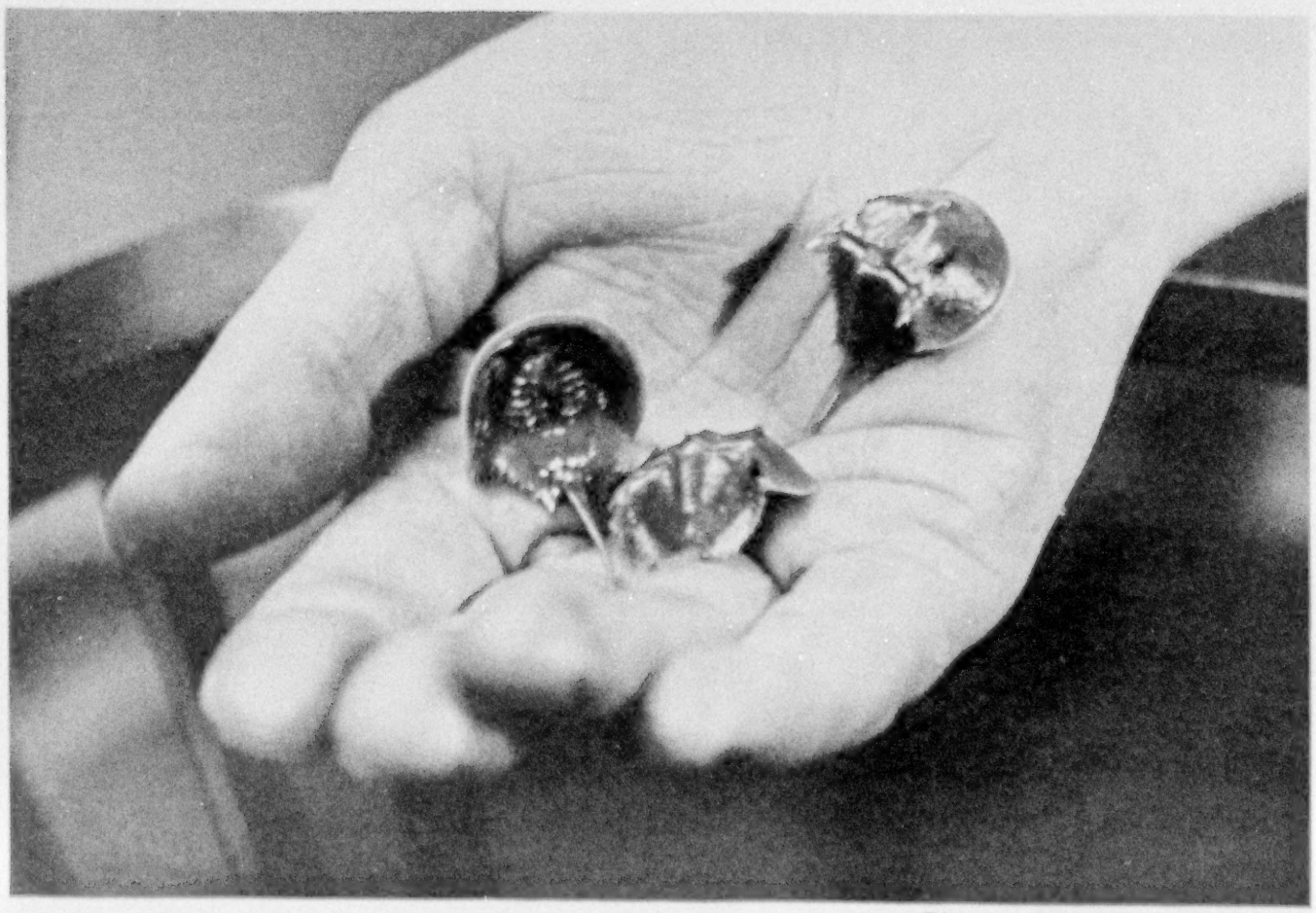
The three paintings constitute the artist's conception of the Romance of Discovery by Land, Air, and Sea. The two remaining subjects—highly decorative Maps of the Hemispheres, in the style of 15th century hand-illuminated charts, with the routes of famous discoverers shown pictorially—will be issued as color supplements, size 18¾ x 19 inches, within the next few months.

A limited edition of "The Discoverer," at $1.50, and of "Commander Byrd at the North Pole," and "The Caravels of Columbus" at $1.00 for each print, on special art paper, will be mailed, unfolded, to members who desire copies for framing.

Photograph by Rodney C. Wood

A VENDER OF CRABS IN THE SEYCHELLES ISLANDS

This variety is taken at the mouths of the fresh-water streams where they enter the sea. These Indian Ocean crabs make a delicious salad.



Photograph by William Crowder

WHEN THESE HORSESHOE CRABS ARE FULLY GROWN THEY WILL BE A FOOT OR MORE ACROSS THE SHELL

The growth of this species is slow, as attested by the fact that the little individuals here shown in a woman's hand are more than a year old.

CRABS AND CRABLIKE CURIOSITIES OF THE SEA

By William Crowder

Author of "Living Jewels of the Sea," "Life of the Moon-Jelly," and "Marvels of Mycetozoa," in the National Geographic Magazine

With Illustrations in Color from Paintings by the Author

OF THE numerous groups of animals inhabiting the sea, none offers a greater variety of interest than does that division of creatures called the Crustacea. Aside from the diversity of habits which the different species show, individuals of the same kind often have singularities of traits which make their study peculiarly attractive to the naturalist. Particularly is this the case in that group which constitutes the Crabs.

Although all living animals of the earth now exhibit a wide divergence, it is not inconceivable that by origin they belong to a single family. Thus they are subject to classification. Occupying a position about midway between the one-celled protozoans and the animals having a backbone are those lower creatures without a backbone, but possessed of jointed legs, and known as the Arthropoda. The crustaceans, according to the present system, stand at the head of all arthropods; and the Crabs are the highest of crustaceans.

CRUSTACEANS FOUND EVERYWHERE

Some forms of crustacean life can be met with almost everywhere. Inland they are represented by the crayfishes of ponds and streams and by the familiar pill bugs of cellar and garden and moist situations generally.

Yet there is one crab which, despite its restricted habitat, has found universal fame. This is the edible Blue Crab common to the waters of certain localities along the Atlantic coast; and this is the crustacean which comes to our tables under the less distinctive, but better-known, title of "soft-shelled crab." Science identifies it as *Callinectes sapidus* (see Color Plate II).

The Blue Crab, however, is entitled to a reputation of sorts, even were it without those palate-appealing attributes upon which rests its present fame. It is unusually powerful and one of the most active of swimming crabs. By the same token it is fearless. Pugnacious, it will at times attack an individual of another species which is as large or even larger.

As in all swimming crabs, the last joints of the hind legs of the Blue Crab are modified into oarlike expansions, enabling the animal to propel itself with comparative rapidity.

Still, notwithstanding its ability to overtake many creatures which would serve as its food, it prefers to make its captures by a totally different method. It buries itself in the bottom, where it lies entirely concealed, with the exception of its stalked eyes. Here it awaits such passers-by as are to its liking. When one such approaches within striking distance, the crab pounces upon it with the swiftness of a cat.

It must be added, nevertheless, that almost anything is grist which comes to the Blue Crab's gastric mill. It will eat of carrion as readily as it will of the appendages of a living Hermit Crab, which it is particularly prone to tear apart.

An economic commercial value of crabs in this country is found in fewer than a half dozen species; but in the economy of Nature all are valuable. Of the several hundred odd species which inhabit our coasts, nearly all are scavengers and perform an important work in keeping our shore waters clean.

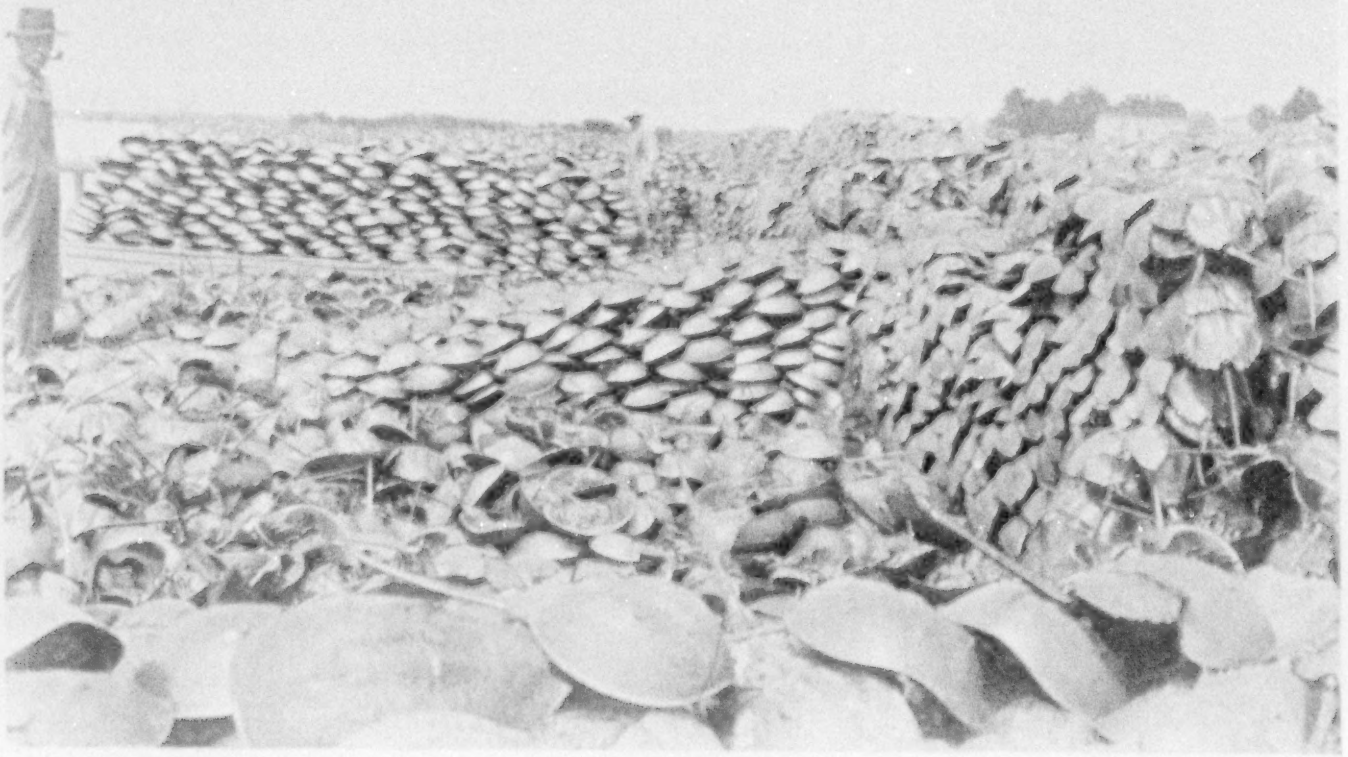
THE BLUE CRAB IS THE ONE WHICH WE MOST OFTEN EAT

Commercially the Blue Crab ranks first in importance, but its place is partly, though surreptitiously, supplanted by the Rock Crab (*Cancer irroratus*) (see Color Plate V).

This crab, like the flounder and the skate, which are often served as scallops, not infrequently finds its way to hotel and restaurant tables disguised as the "soft-

SOUTHERN STONE CRAB

This armored knight of the coral rocks, sporting the technical designation of *Menippe mercenaria*, is found along our South Atlantic and Gulf coasts. Most epicures consider its meat the most delicious of the crustaceous legions. The flesh of the huge, lobsterlike claws is wonderfully flavored and rich in food value. The Stone Crab is known by various names in Cuba and the Bahamas.



Photograph by Roydon L. Hammond

MOUNDS OF HORSESHOE CRABS TO BE CONVERTED INTO FERTILIZER

This collection of 300,000 marine creatures, stacked like cordwood at Bowers, Delaware, is valuable for its ammonia content. After these Horseshoe Crabs have been dried and coarsely ground they will be sold to fertilizer manufacturers. In 1927 half a million such individuals were collected at Bowers and a larger crop is anticipated this year.

Photograph by H. Armstrong Roberts

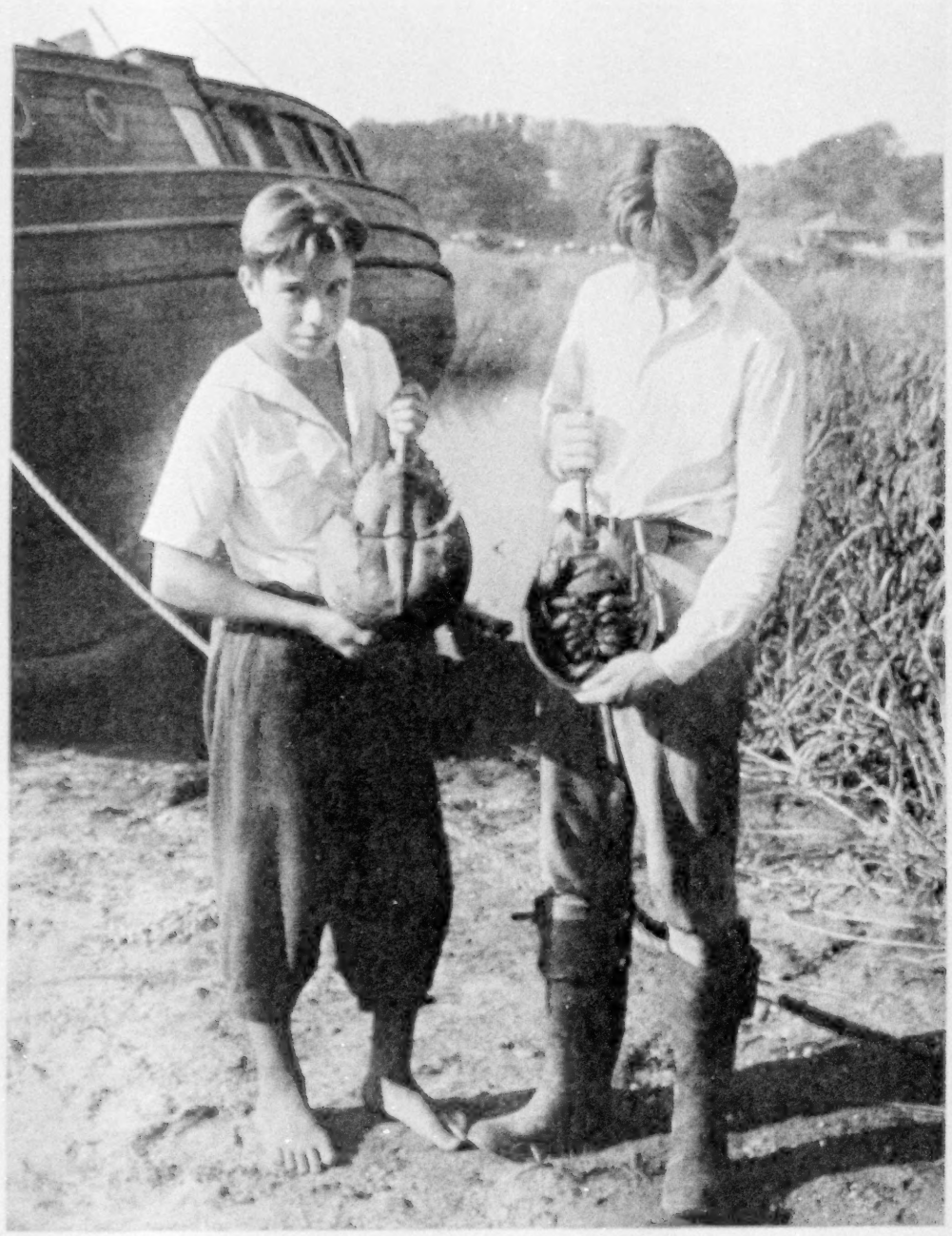
EXPLAINING THE ANATOMY AND INTERESTING HABITS OF THE CRAB

shelled" variety of the Blue Crab. Except for the possible danger that lurks in a stray and unsuspected bone in the one and a less distinctive flavor in the other, the harm done by these frauds is negligible. One is as wholesome to eat as is the other.

The shells of all crabs are normally hard. At different periods, however, the individual casts off its outer covering to accommodate its growth. The newly exposed shell is soft; in a day or so it becomes completely hardened. It is during this molting period that the crab is said to be in the "soft-shelled stage."

The Rock Crab is a frequenter of more shallow water than is the one it understudies. It has neither the disposition nor the ferocity of the Blue Crab; otherwise its general food habits are the same. Unable to swim, it is very secretive, crawling from under one sheltering rock or seaweed to another. Still, despite its common name, it likes to spend much of its time in the sand, where, after the manner of the Blue Crab, it will lie for hours buried up to its watchful eyes.

Such crabs as are known to dwell habitually in the deeper waters belong for the most part to the Spider Crabs. The species of Spider Crabs are considerable, numbering some 250. This group contains not only the largest known crabs, but



Photograph by William Crowder

THE HORSESHOE CRAB'S WORST ENEMY

This species is taken in large numbers as food for livestock. It is also destroyed by many fishermen and seaside visitors, who erroneously believe it to be a menace to bait.

Photograph by H. Armstrong Roberts

A TOE-HOLD ON A HIGH-STEPPER

Many are the charges of assault laid at the claws of crabs, but seldom are such attacks substantiated. This young crabber was posed for this picture at Barnegat Bay, New Jersey.

Photograph by William Crowder

HORSESHOE MOLTS CAST UP BY THE TIDE

The Horseshoe Crab frequently sheds its hard shell to accommodate its growth. Such cast-off coverings are strewn at the tide-marks in great numbers (see, also, text, page 71).

Photograph by Garner Curran

A SIBERIAN CRAB WHICH MEASURES NEARLY THREE FEET ACROSS

The smile on the face of the fisherman is not caused by his good catch, but from the 5 rubles paid him just to hold up the crab so that it might be photographed.

what is undoubtedly the greatest in size of all crustaceans—the Giant Spider Crab (*Macrocheira kämpferi*), found off the Japanese coast. It has a leg spread of as much as twelve feet (see page 72).

Some species of Spider Crabs there are, however, which spend their lives very close to the shore. Among these are the Common Spider Crab (*Libinia emarginata*) and the Warty Crab (*Parthenope pourtalesii*) (see Color Plate VII). Their movements are sluggish and they subsist largely upon such fixed fare as hydroids and mussels, although they do not disdain a titbit in the way of fouler flesh.

THE SPIDER CRAB IS AN EXPERT AT CAMOUFLAGE

Their sluggishness, to say nothing of their awkward appearance, would seem to betoken a slowness of wit; yet some of these creatures, such, for instance, as Libinia, are remarkably keen.

They have a curious habit of camouflaging themselves by attaching seaweeds, sponges, hydroids, or other growths to the spines and hooked hairs which cover their backs. Nor is this method of concealment a haphazard affair; invariably they select only such materials as are in keeping with the color and nature of their general surroundings.

Laboratory experiments have proved not only that the Spider Crab can distinguish differences in hues, but also that it has a decided sensitivity to variations in shade.

The vast majority of crabs spend their entire existence under water—a mode of life obviously necessary for gill-breathing animals. The Fiddler Crabs (*Uca minax, Uca pugilator*), however, have learned to live on the land (see Color Plate VI). They occur in enormous numbers on the shores of the Atlantic coast, where they burrow between the tide marks. On sand beaches and in the salt marshes their excavations often may be seen to honeycomb the banks.

The male Fiddler Crabs are distinguished by their great claw, which they carry folded in front. It is this enormous appendage—so large that it is practically useless—which probably gave them their common name, for it is easy to fancy it as a huge bass viol. The claws of the female are small and of equal size.

Fiddler Crabs do not remain wholly out of water; their homes are covered at every tide, but nevertheless the animal lives in a large bubble of air he has trapped in his burrow by plugging the opening when the water rises.

CRABS PICK AND CHOOSE THEIR HABITAT

Crabs are not unlike land animals, in that they have preferences for certain localities as well as for the character of ground, or bottom, peculiar to these localities. In the same way that some crabs are found only in deep water, while others inhabit the intermediate depths, and still others the shallows close to shore, certain species are prone to live only where the bottom is composed of stones, gravel, or sand, while others prefer the ooze and mud.

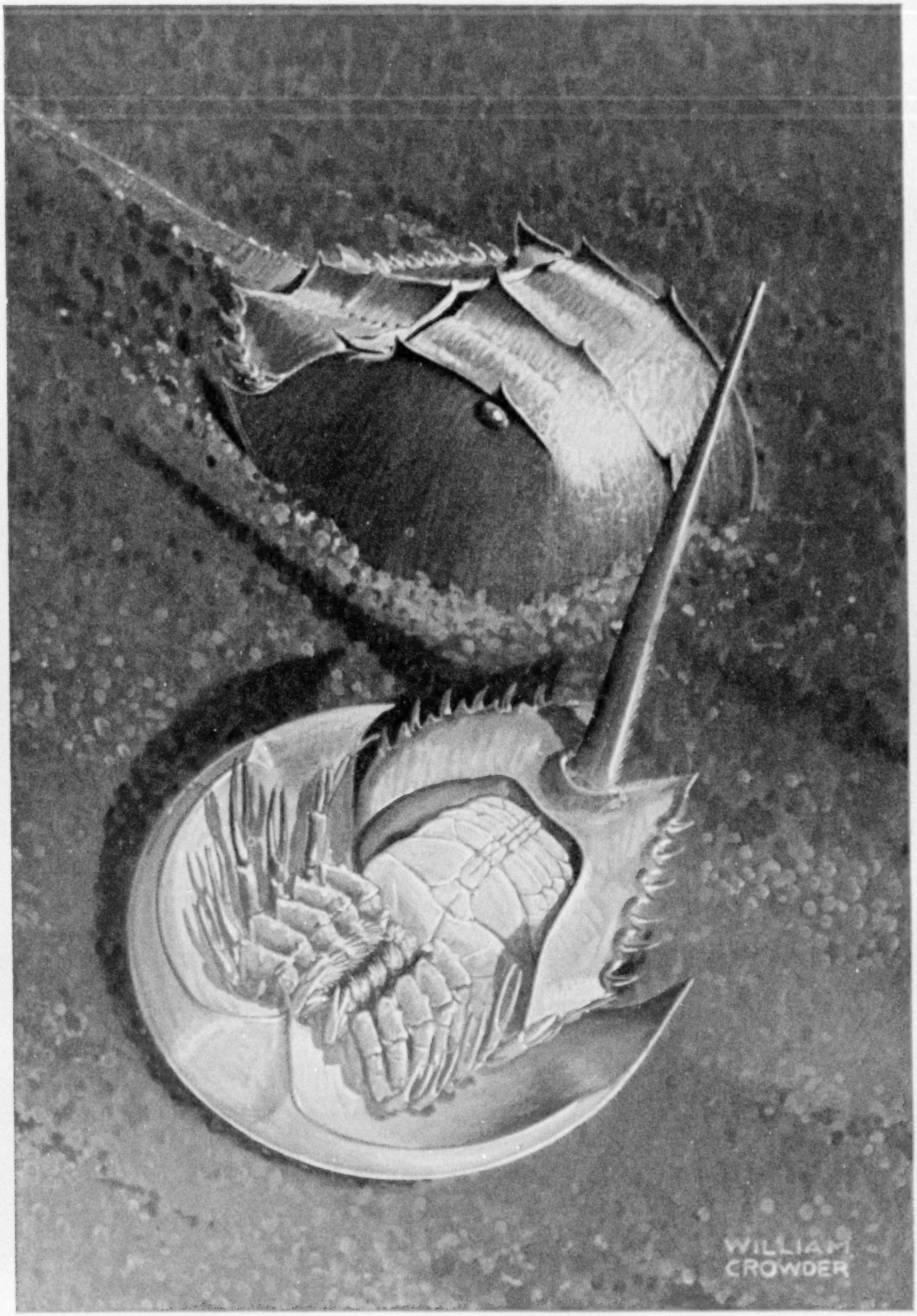
The Mud Crab, as its name implies, is a lover of the latter habitat (see Color Plate IV). This curious little creature is also adept at camouflage, but to a lesser degree than the Spider Crab. It covers its back loosely with mud or such detritus as is available or near at hand, but without much regard for color or contrast in the materials of its cloak; yet it has a remarkable capacity for making itself inconspicuous by another method. Deprived of silt or other substances, it will simulate its surroundings merely by changing the hue of its shell.

Everyone who has visited the Atlantic seashore knows the Hermit Crab (*Pagurus longicarpus*), so called because of its custom of traveling about with its hind body protected by a dead univalve mollusk's shell. Yet not everyone is aware that this is a custom born of necessity. The hind body of the Hermit Crab, unlike the fore body and its exposed appendages, which are armored, is soft, weak, and defenseless; consequently, for this region of its body the animal must use a borrowed covering that is at once its garment and its home (see Color Plate VIII).

THE SOLE SURVIVOR OF ONE OF THE MOST ANCIENT OF ANIMALS

Despite its popular name, the Hermit Crab is not, strictly speaking, a true crab. It is allied more nearly to the long-bodied crustaceans, such as the crayfish and lobster.

This matter of mistaken identity now



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THE HORSESHOE CRAB

This seashore creature, *Xiphosura* (*Limulus*) *polyphemus*, is the last survivor of a group of animals which otherwise has been extinct for millions of years. It is more closely related to spiders and scorpions than to the crab family. The Horseshoe Crab is sometimes two and a half feet long, but almost half of its length is devoted to its spiny tail.

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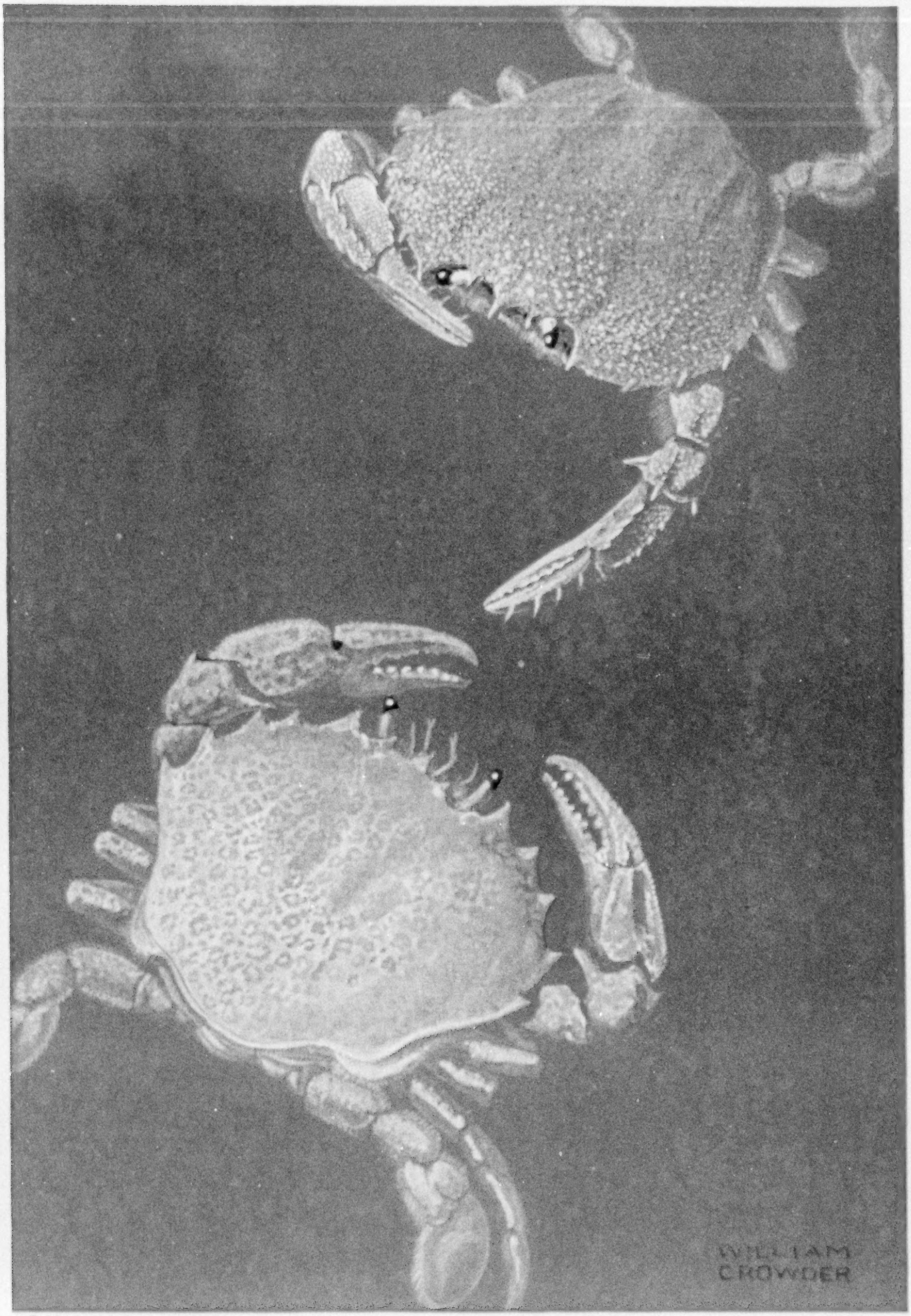
THE BLUE CRAB

This is the edible crab, so well known on our tables as the "soft-shelled crab," during its molting period. The painting shows it as seen in shallow water on a bright sunny day. The Blue Crab, *Callinectes sapidus*, when in the hard-shelled stage, is powerful and one of the most active of swimming crabs (see also Color Plate III). It is common to certain localities on the Atlantic coast.



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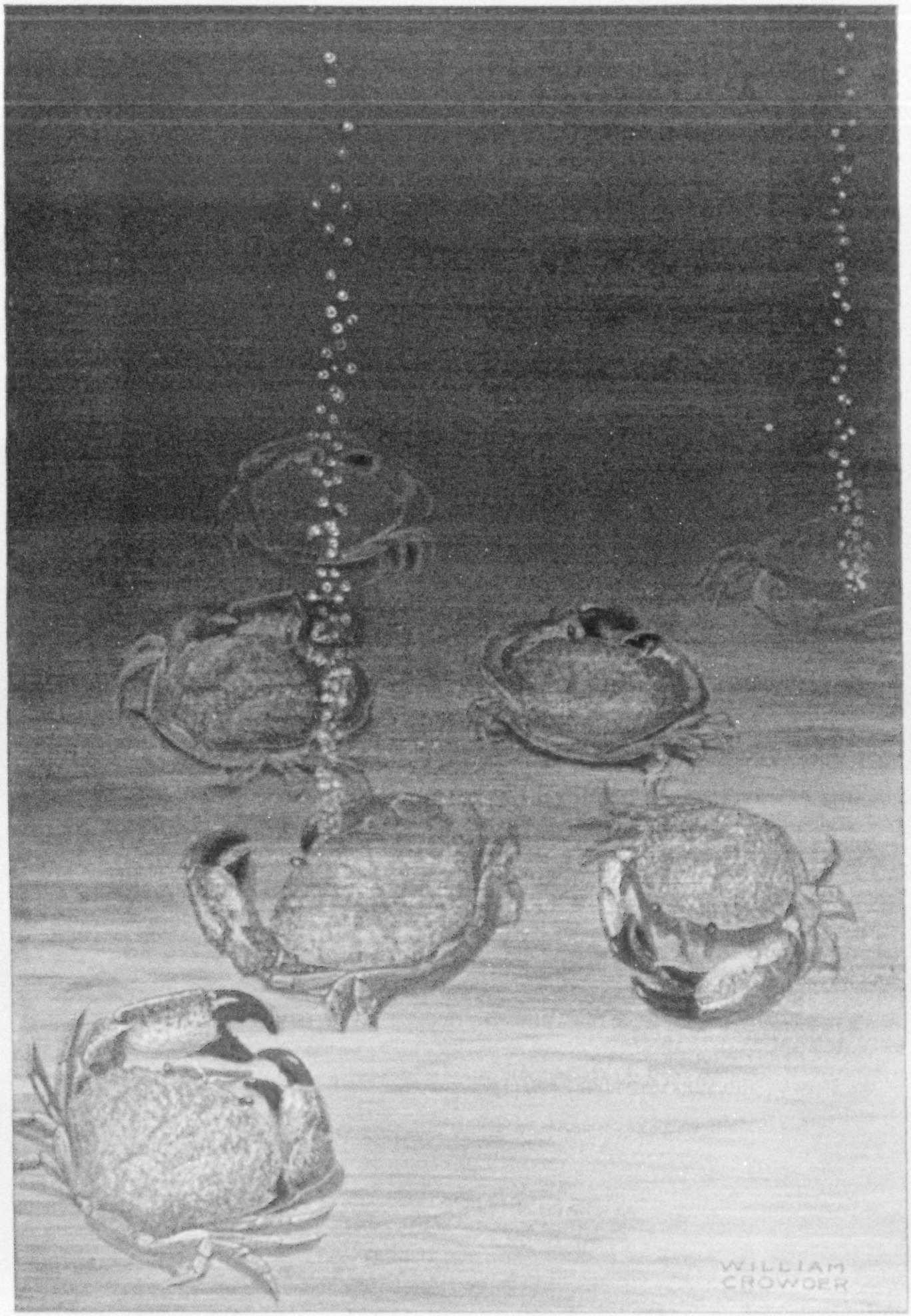
SWIMMING CRABS

All swimming crabs have the rearmost of their five pairs of feet modified so as to function like paddles. Consequently they are able to rove for considerable distances, which they seem to do in crowds. All are agile in their movements, and they are armed with very strong claws. The upper is the Iridescent Crab, *Ovalipes iridescens*, from deep water in the Dutch East Indies; the lower, known as the Lady Crab, is *Ovalipes ocellatus*.



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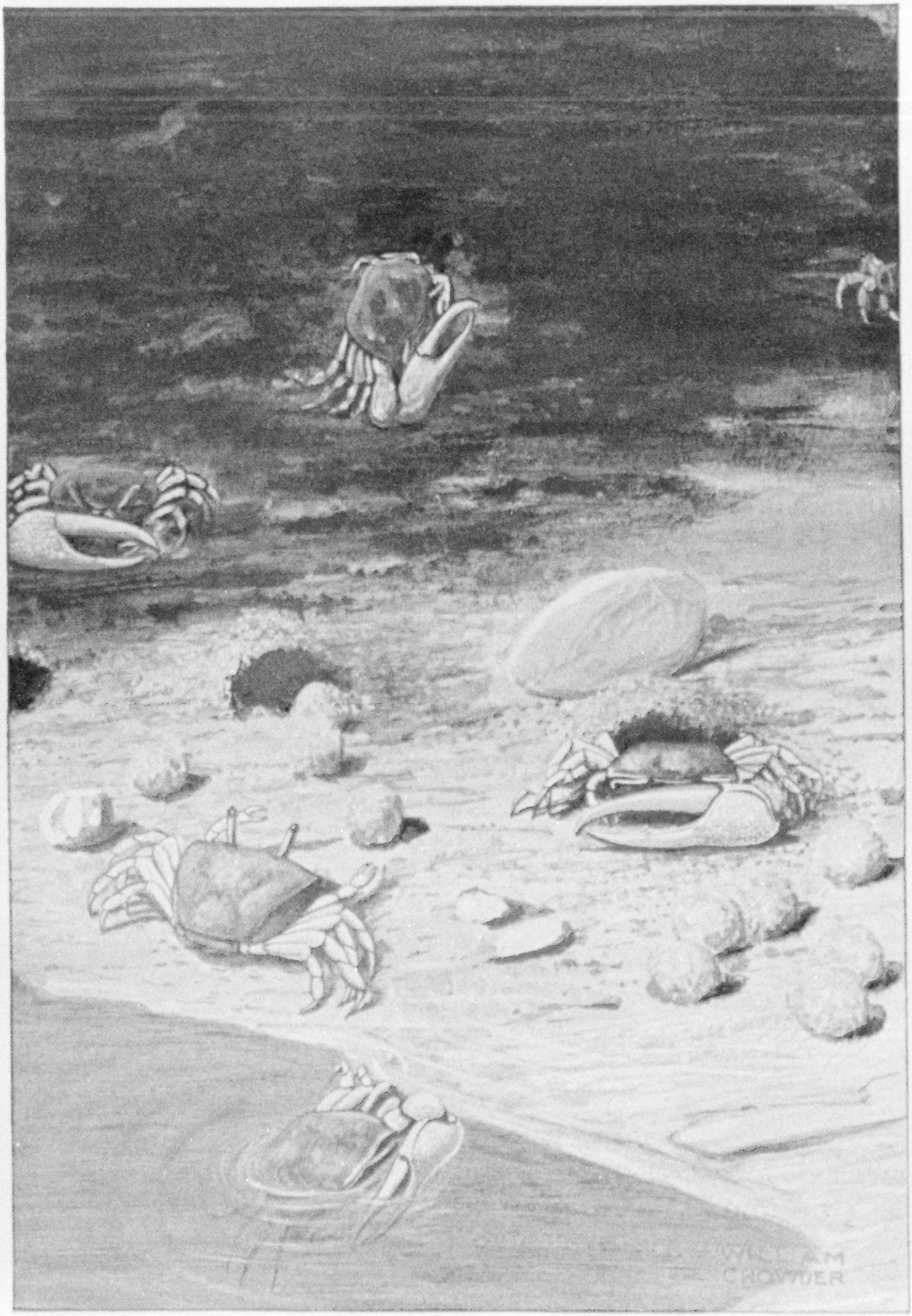
THE MUD CRAB

The species represented here, *Neopanope texana sayi*, is not so addicted to a muddy habitat as its popular name would imply. It is found under stones, on sandy and gravelly bottoms, and is particularly abundant on oyster reefs.

© National Geographic Society

THE ROCK CRAB

Second only to the Fiddler Crabs in numbers on the New England shores, the Rock Crab thrives in the shallow waters of bays and harbors and is frequently dispensed as a table article under the guise of a Blue Crab. Its scientific name is *Cancer irroratus*.



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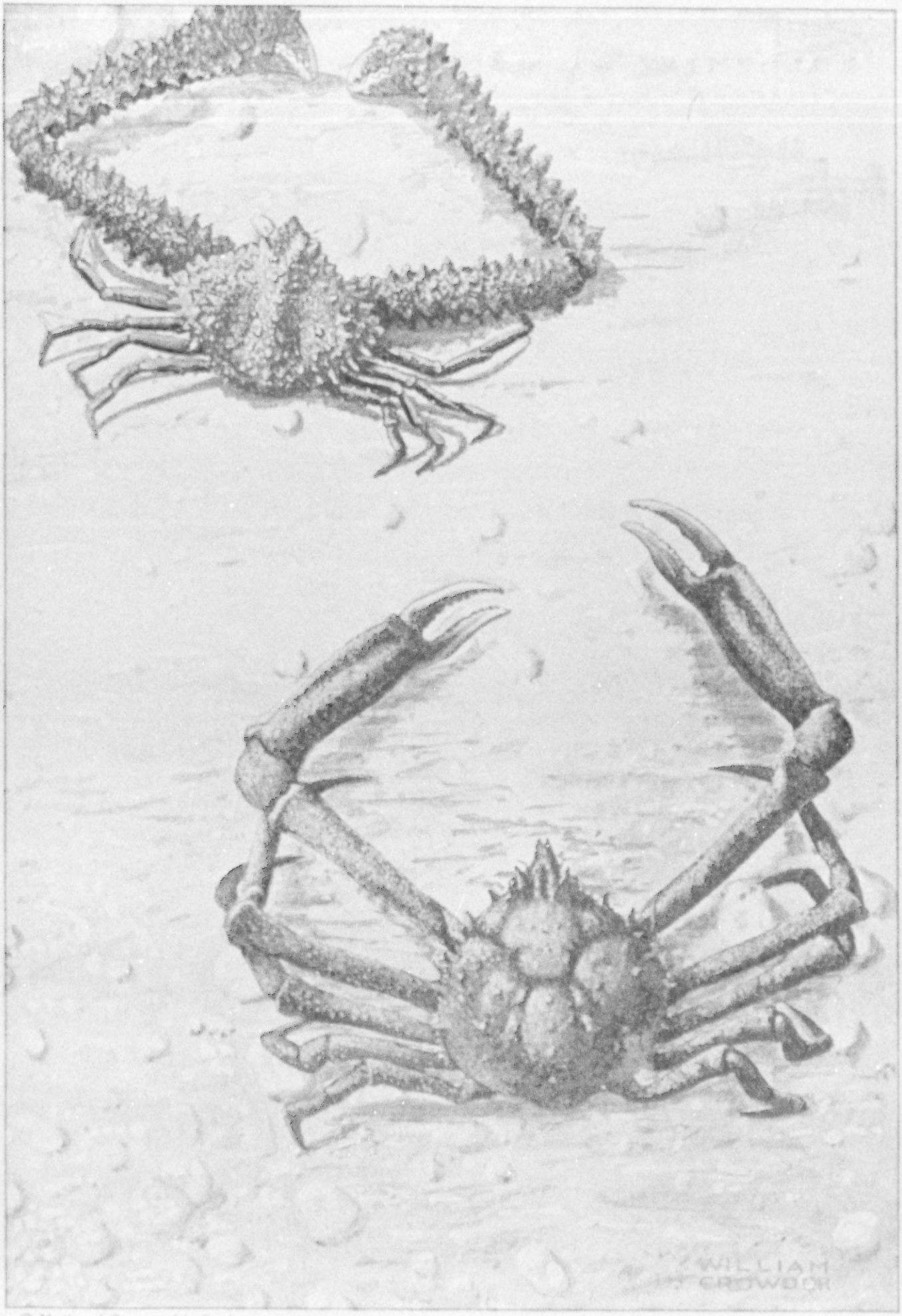
FIDDLER CRABS

It is probable that the Fiddlers outnumber any other species of crabs. They are common to nearly all shores, where their burrows honeycomb the banks between tide levels. The yellow-clawed individuals in the upper part of the picture are mud-inhabiting species, *Uca pugilator*. The lower are the *Uca minax*, with ovenlike entrances to their burrows, surrounded by balls of excavated sand.



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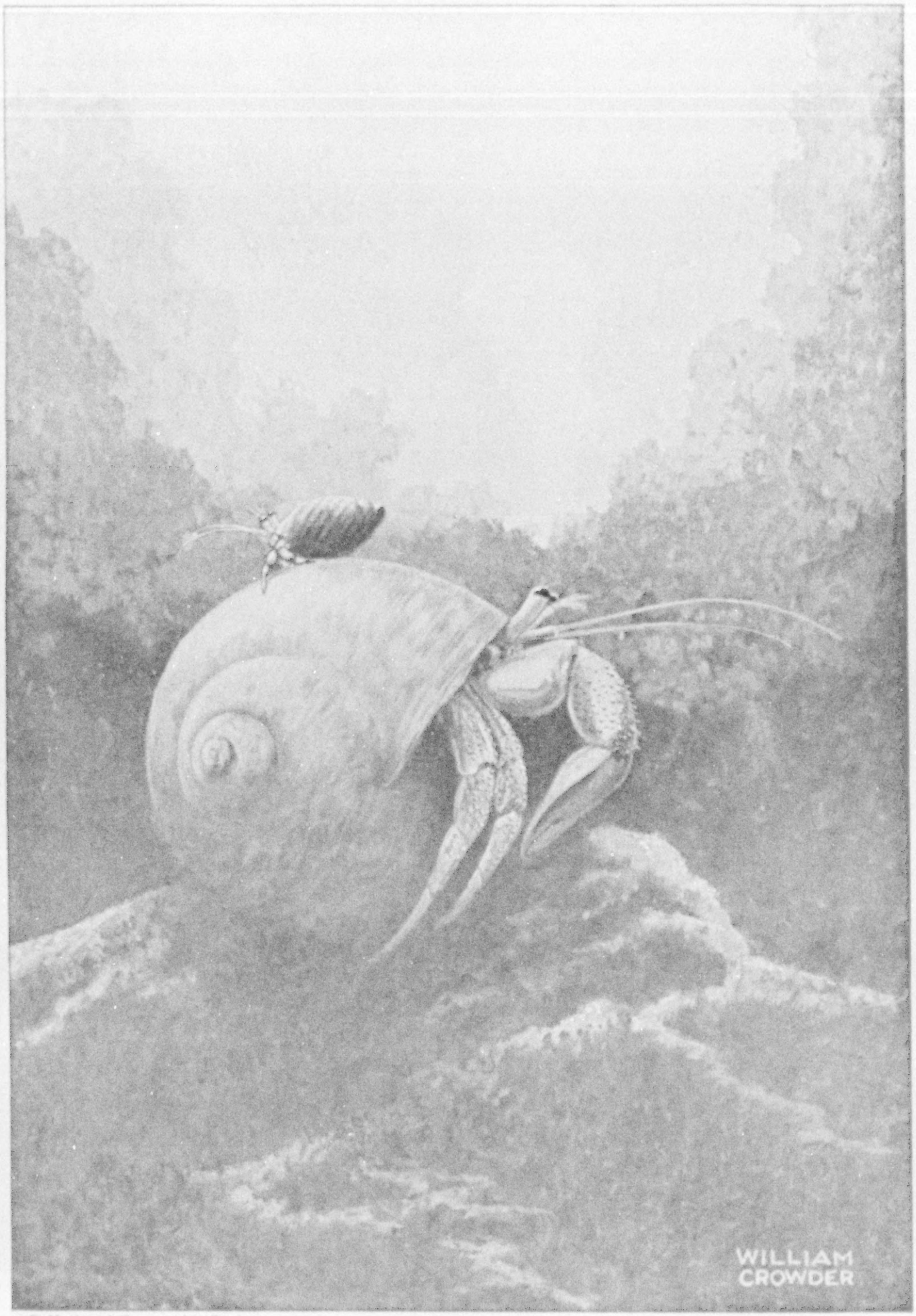
SPIDER CRABS

Of all the higher crustacea, the Spider Crabs are the most curious in appearance, and they are the most intelligent. The upper, *Parthenope* (*Platylambrus*) *pourtalesii*, lives among the rocks below the low water level. The lower (*Libinia dubia*) is a male specimen (indicated by the great claws) of the common form known as the "masked crab."



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THE HERMIT CRAB

In common with most Hermit Crabs, this species, *Pagurus pollicaris*, lives in a shell which was formerly occupied by a univalve mollusk. The hind body of the Hermit Crab is soft and defenseless, and it is of necessity that the animal uses a borrowed covering. This shell is at once a garment and a home. It is, however, an abode which is always carried on the crab's travels. In the mating season they often travel together in pairs, the male sometimes with his great claw grasping firmly the female's front leg so that no rival may steal her.

brings me to consider that most familiar, yet most mysterious, of all the creatures connected in the popular mind with the seashore—Limulus, the Horseshoe Crab (see Color Plate I).

And who has not seen or heard of Limulus? There are few known species, but the number of individuals is legion. One species, *X. polyphemus,* is an American form; another, *X. moluccanus,* occurs only on the eastern coast of Asia. Our Limulus lives on sandy and muddy shores, below the low-tide mark, and it ranges the Atlantic coast from Maine to Yucatan.

Incredible as it may seem in a creature so like the animals from which it derives its common name, the Horseshoe Crab is not a crab. It is not even a crustacean, if we are to believe the evidence of embryology and fossil-bearing rocks. It is supposed by some that it belongs with the spiders and the scorpions; the truth seems to be, however, that its nearest relatives died out ages ago.

The young of the Horseshoe Crab are frequently found in great numbers on the less-exposed floor of tide pools and mud flats, where, molelike, they plow their tortuous trails through the bottom in pursuit of food (see page 56).

The adult, when fully grown, attains an over-all length of two and a half feet; its domelike fore body is nearly a foot wide. Attached to the dome is the double-tipped hind body, somewhat flattened and of one rigid piece. This region of the adult's body is really the fused unit of what in the larval stage was a region of separate segments.

Almost half the length of the Horseshoe Crab is taken up by the spinelike tail, which is literally hinged to the abdominal shell.

THE HORSESHOE CRAB HAS EYES WHICH DO NOT SEE

Besides the great compound eyes borne by the head, it has a pair of simple eyes, located one on each side of the base of the front middle spine. It is doubtful whether they are of any use to the animal; in fact, it is not improbable that, even with its compound eyes, the vision of the Horseshoe Crab is quite crude at best.

The eggs spawned by the female number upward of ten thousand, nearly enough to fill a half-pint jar. These are greenish blue, transparent, spherical bodies about a twelfth of an inch in diameter. The rate of time at which development takes place depends on temperature and to some extent on light. By keeping the eggs in a dark, cool place, hatching may be retarded a year. Normally the eggs hatch about a month after they are laid.

But before the actual hatching many interesting changes take place within the egg. The little larva soon forms after the egg is laid and continuously revolves within the shell. It assumes the so-called trilobite stage; then comes the first molt of its integument.

Increasing growth has caused the contained creature to outlive its old skin and to cast it off within the egg case. By the time the tiny beast is ready to hatch, it is plump, possessed of two pairs of eyes, simple and compound, and has attained a general likeness to the adult.

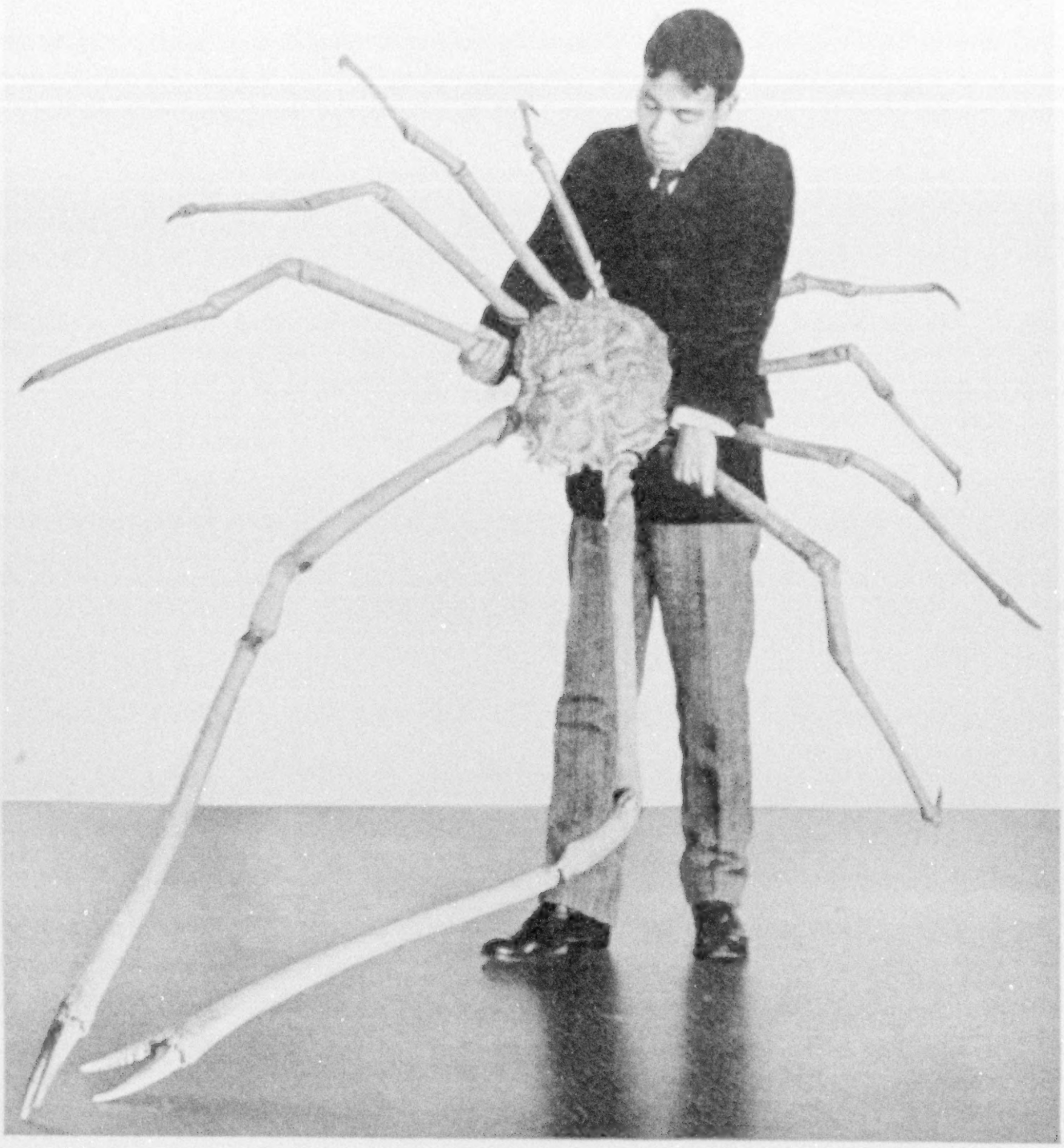
The exertions of the larva rupture the egg membrane, and the young animal is liberated. It is now a trifle more than a tenth of an inch long and a little less than this in breadth. Forthwith it shows great activity, striking out at once into the water and essaying to swim; but at this business it is a poor performer.

It manages somehow to live a nomadic life for about a fortnight, being drifted about rather than getting anywhere of its own accord. Then it molts again and settles to the floor. With this molting it loses entirely all traces of its early form, some of which had been retained. A short, spinelike tail now graces the hind body, which is flat, and its whole underside is hollow (see page 61).

Turning the animal upon its back reveals some of its most singular structural features. On first examination, the underside appears to present a confusing array of appendages, but these are simpler than they seem. In the cavity of the head region are six pairs of legs with claws, the rearmost pair having, in addition to claws, some leaflike expansions which enable the animal to push itself through the sand and mud. Covering the abdomen are the gills, flat structures superficially resembling the leaves of a book.

THE ONLY CREATURE THAT CHEWS ITS FOOD WITH ITS LEGS

And here is an extraordinary feature which cannot fail to impress the most



THE GIANT SPIDER CRAB FROM JAPAN

This fine specimen of the largest of all crustaceans, the Giant Spider Crab, *Macrocheira kämpferi*, measures nearly 12 feet between the tips of its outstretched claws. This animal is known to occur to a depth of over 2,000 feet in the seas off the coast of Japan.

casual observer, for in no other living animal is there a similar adaptation serving the same purpose—the Horseshoe Crab literally chews its food with its legs, the base of four of these members being set with bristling spines, which act like jaws and with which the food is torn and reduced before it is swallowed.

Notwithstanding the fact that these remarkable survivors from another day are still numerous enough to be among the commonest animals of the seashore, they are probably passing through their final period. In recent years, since mankind became aware of their destructive habits on oyster beds and value as a soil fertilizer, wholesale slaughter has taken place.

Naturalists record that as late as 1856 more than a million Horseshoe Crabs could be seen to come ashore and lay their eggs within the area of a single mile along certain sections of our Eastern coast. To-day there is no such abundance, and at the present rate of decrease these curious creatures may become practically extinct within the time of men now living.

TRAILING HISTORY DOWN THE BIG MUDDY

In the Homeward Wake of Lewis and Clark, a Folding Steel Skiff Bears Its Lone Pilot on a 2,000-Mile Cruise on the Yellowstone-Missouri

By Lewis R. Freeman

Author of "Surveying the Grand Canyon of the Colorado" and "The Mother of Rivers," in the National Geographic Magazine

IDEAS as well as boats ride on rivers. Fur traders, gold seekers, Indian fighters—once this Big Muddy ferried them. The voyageurs dragging their clumsy, heavy-laden craft, covered wagons, and pioneer farmers fighting their hard way to free lands; Custer facing the Sioux that fatal day on the Little Horn; Buffalo Bill shooting meat for railroad builders—the ancient river saw them all come to impose the white man's culture. Now schools and colleges rise where Lewis and Clark pitched their rude camps; and radio music crackles where once echoed only the war whoops of the painted savage, the howl of wolves, and the grunt of stampeding buffalo.

Long I had dreamed of this trip down the Big Muddy, in the path of Lewis and Clark, first white men to trace the course of this winding yellow stream. I wanted to see the places where they camped; to find the changes from ideas carried on the river since they came, saw, and wrote their quaintly worded journals.

THE YELLOWSTONE IS THE MISSOURI'S MAIN FORK

Livingston, Montana, on the Yellowstone, was my starting point; for to me, as to many old river skippers, the Yellowstone River is, despite confusing nomenclature, the main fork and chief source of the Missouri. Running north 50 miles from Yellowstone Park, this swift stream breaks from the mountain wall of the Rockies and flows northeast to join the Missouri. It was near here that Captain Clark, temporarily separated from Lewis on their return from the Columbia, first saw the upper Yellowstone.

Livingston was in gloom. Lately the river had claimed three men. I, myself, should have a guide, at least for the first few miles, people insisted; for this upper Yellowstone has ways of its own; one cannot fathom its tricks by things learned on other rivers. Though my boat was of light steel, made to be folded and carried on the running board of an automobile, I had to admit an extra man might be useful in case I should swamp and need help to salvage my outfit.

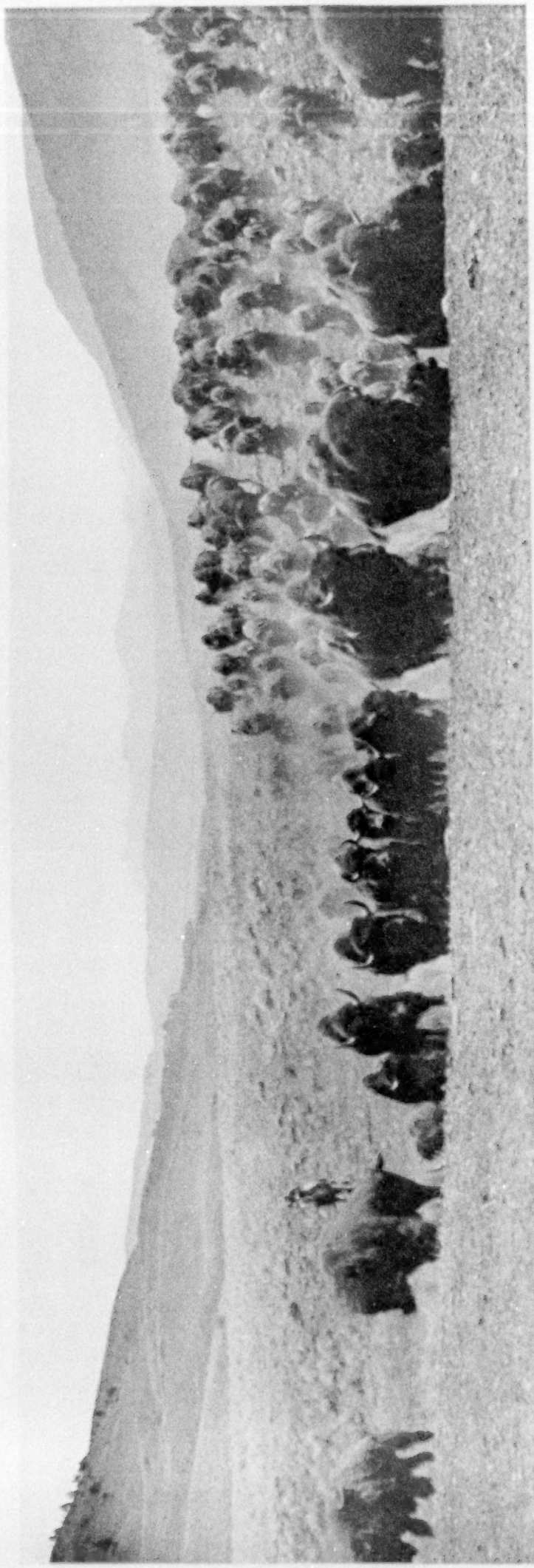
So word was sent upstream to "Buckskin Jim" Cutler, asking him to join me. He started down the river on a raft; but just as he reached Livingston a hanging tree swept him overboard. The eddies were too strong and he was drowned. . . . Then Pete Holt, local chief of police and once my companion on a ski trip through Yellowstone Park, agreed to go with me for the first 100 miles.

From the river bank groups of people waved farewell and shouted warnings to us as we shoved off, soon after breakfast, on the last day of June.

Here the current was relentless in its onward urge. It is the almost complete absence of slack water between Gardiner and Glendive that makes the Yellowstone different from any other river of my experience. It is this condition, also, which makes it so nearly ideal for downstream boating.

THE SKIFF BEHAVES WELL IN ROUGH WATER

My skiff behaved so well in the first riffles that I was tempted to give it a baptism in the first really rough water, if I could find such a spot where salvage would be fairly easy in case of an upset. Such a chance came at the Springdale Bridge rapids, rated the worst on the river below Yankee Jim's Canyon. Here I gave the boat her head and let the undercurrent draw her fairly into the main



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IN AMAZEMENT THE PIONEERS GAZED ON VAST HEAVING HERDS OF ONRUSHING BUFFALO THAT STRETCHED EVEN TO THE VERY HORIZON

Thousands upon thousands of these great creatures were killed for hides alone. Plains Indians, seeing their meat supply threatened by white hunters, made vain war on settlers. Years later, when Government protection was finally extended to the buffalo, their number in Yellowstone National Park had been reduced to a bare 25 animals. In recent years they have thrived, however, and this herd is a part of the 1,000 animals that now find sanctuary within that reservation.

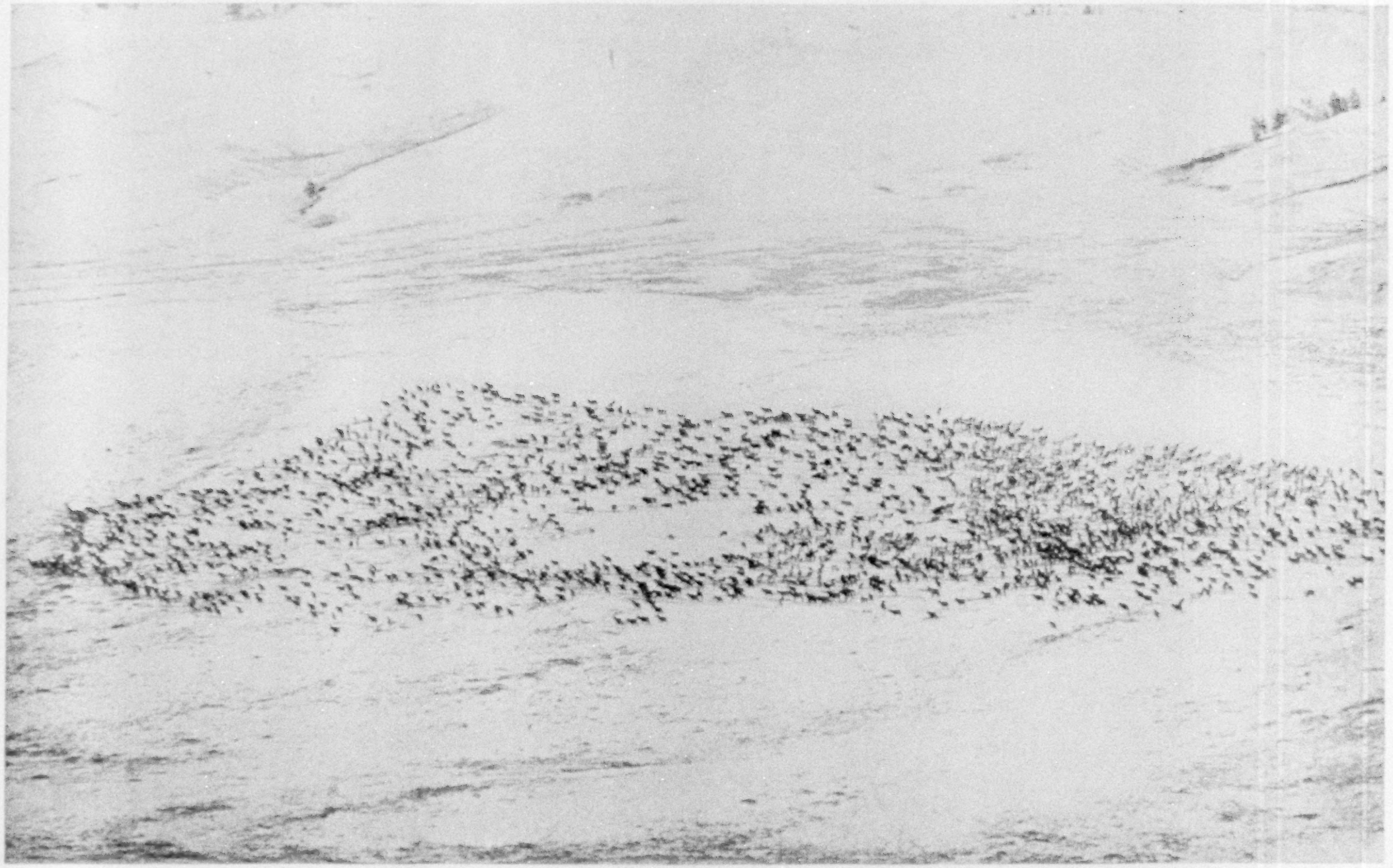
string of rollers. Wild, wallowing water it was! But she took it like a duck. I felt supreme faith now in my new boat.

Afternoon came, and we passed Buckskin Jim's raft stranded on a bar. A few miles below, we saw a dead man, one of the three drowned the week before at Livingston—grim evidence of the river's power. Here Holt left me. From there on to St. Louis, nearly two months away, I paddled alone.

Sinister thunder, rumbling and persistent, threatened me early next morning. Restless counter-marching clouds above the valley were full of wind gusts. Sudden side-swipes of air made the skiff yaw crazily. I kept going; but was yet to learn proper respect for Montana thunderstorms!

I had not yet come to the point where Clark had launched his dugouts. Seeking suitable timber, he had skirted the north bank all the way down from where he had first hit the upper Yellowstone (see text, page 73). The flint-paved mesas wore down the hoofs of his Indian ponies, so he had to protect them with buffalo-hide shoes. This increased his anxiety to take to the river.

Near here, Clark says, one of his men, Gibson, in mounting



A HERD OF ELK NEAR JACKSON HOLE, WYOMING, APPEARS FROM THE AIR NOT UNLIKE A MARCHING INSECT ARMY

The sad destruction of the majestic elk has been hardly less tragic or wanton than man's foolish decimation of the useful wild buffalo. In belated atonement, both these animals are now protected. Herds of elk numbering about 17,000 find sanctuary in Yellowstone National Park, and a few miles south, at Jackson Hole, close to 20,000 more found shelter last season on a winter-feeding refuge.

Official Photograph, U. S. Army Air Corps

WHERE THE YELLOWSTONE RIVER FALLS 300 FEET

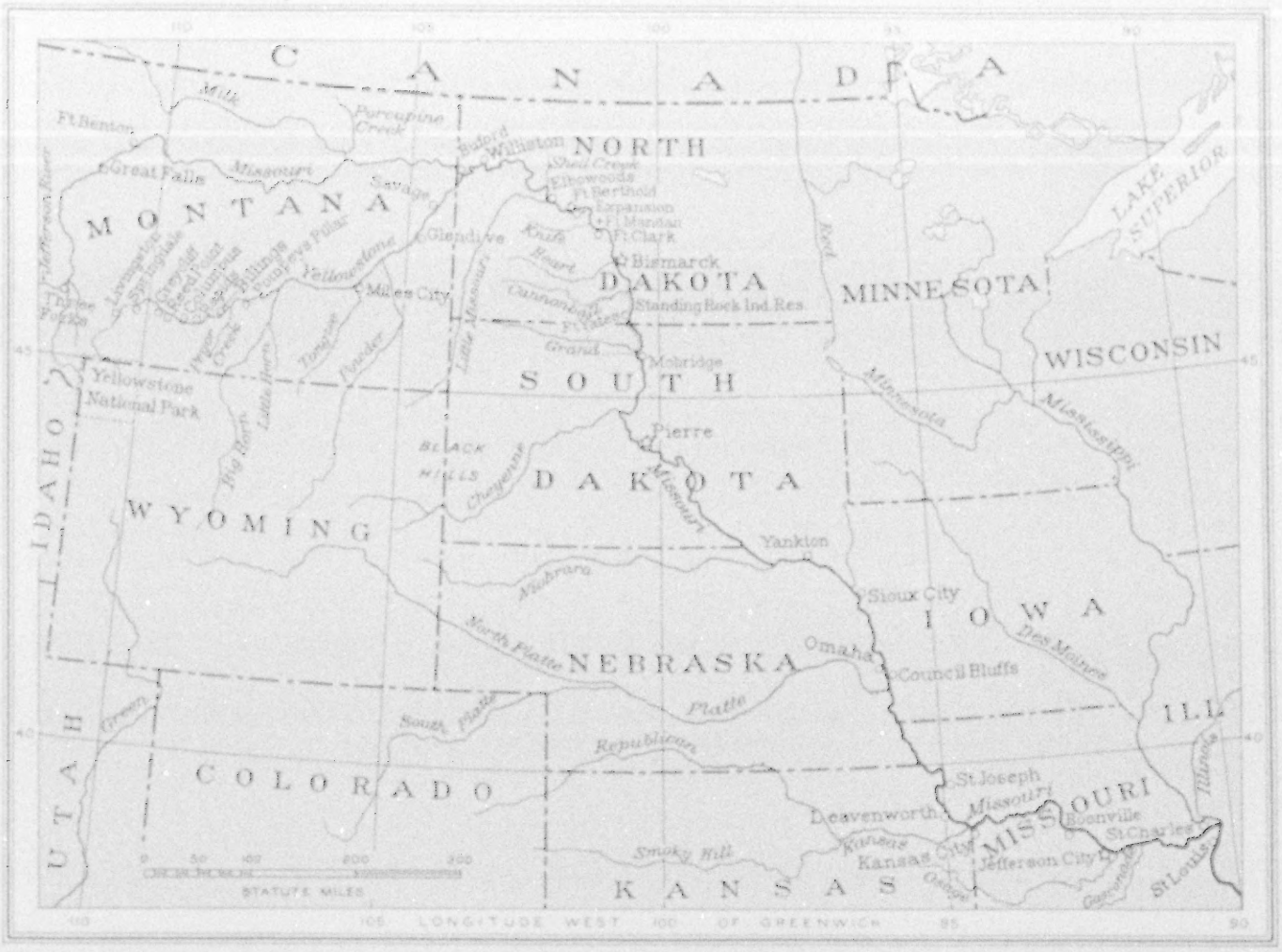
Eight thousand feet above the sea, in a cold, clear lake of the same name, the Yellowstone River has its source. Through a tree-fringed valley it flows calmly for a few miles; then, with a roar like thunder, goes plunging over its falls. In the middle distance, at the left, in a bend of the river, a camp is pitched.

his horse after shooting a deer, "fell on a snag and runt (ran) it nearly two inches into the muskeler (muscular) part of his thy (thigh)." That incident inspired the explorer, who had already used up the names of his party a half dozen times over in geographical nomenclature, to give the name "Thy Snag'd" to a small local creek.

RUNNING RIFFLES IN A MIST

Because Gibson suffered so much, the march was halted. During this halt Clark found the best trees thereabout and set his men making dugouts. Two of these, lashed together side by side, made a craft so seaworthy that it was not abandoned till long after the junction with Lewis on the Missouri.

The broken piers of Greycliff's ruined bridge menaced me from the mist as I drove past, and below the new bridge the sagging strand of a cable swooped at me from the air. Then came a sharp bend, with the noise of rapids roaring in the obscurity below. Standing up to get a better view, I was warned by the pitching of the skiff that I had floated into a bad riffle. Seeking to straighten the cushion on my seat, I was jolted from my feet by the first solid wave, so that I sat down



Drawn by A. H. Bumstead

THE ROUTE OF THE AUTHOR'S 2,000-MILE VOYAGE DOWN THE YELLOWSTONE-MISSOURI

In a 14-foot sectional steel skiff weighing 150 pounds (see page 84), the author journeyed for almost two months from Livingston, Montana, down the swift Yellowstone and the lazy, swirling Big Muddy to St. Louis.

with my full weight upon the doubled index finger of my left hand. It was not until I reached St. Louis that I found two bones had been broken.

It rained all that night and until 10 o'clock next morning. Then the humid atmosphere gave way to sharp northwesterly weather. The wind kept rising. By noon a whistling gale swept the valley, blowing straight from the Rockies. The fact that it was almost dead astern allowed me to keep going. An equally strong wind blowing upstream would have stood the river on its head and raised such a rough-and-tumble of whitecaps that no skiff could have lived in it for half a minute.

I passed Reed Point and Columbus early in the afternoon. Below, I began to watch for a certain line of bluffs which Clark named "Black Bluffs." That name they retain to this day.

I picked up Black Bluffs just as the hard-running riffle giving Rapids Station its name began to boom ahead. Undoubtedly, on a flat below, was the very place where Clark had halted, built his boats, and taken to the river.

HITTING THE RIVER TRAIL OF CAPTAIN CLARK

Even the pressing exigencies of navigation could not obliterate the thought that, from some point a few yards ahead Capt. William Clark was going to be my pilot all the way to St. Louis.

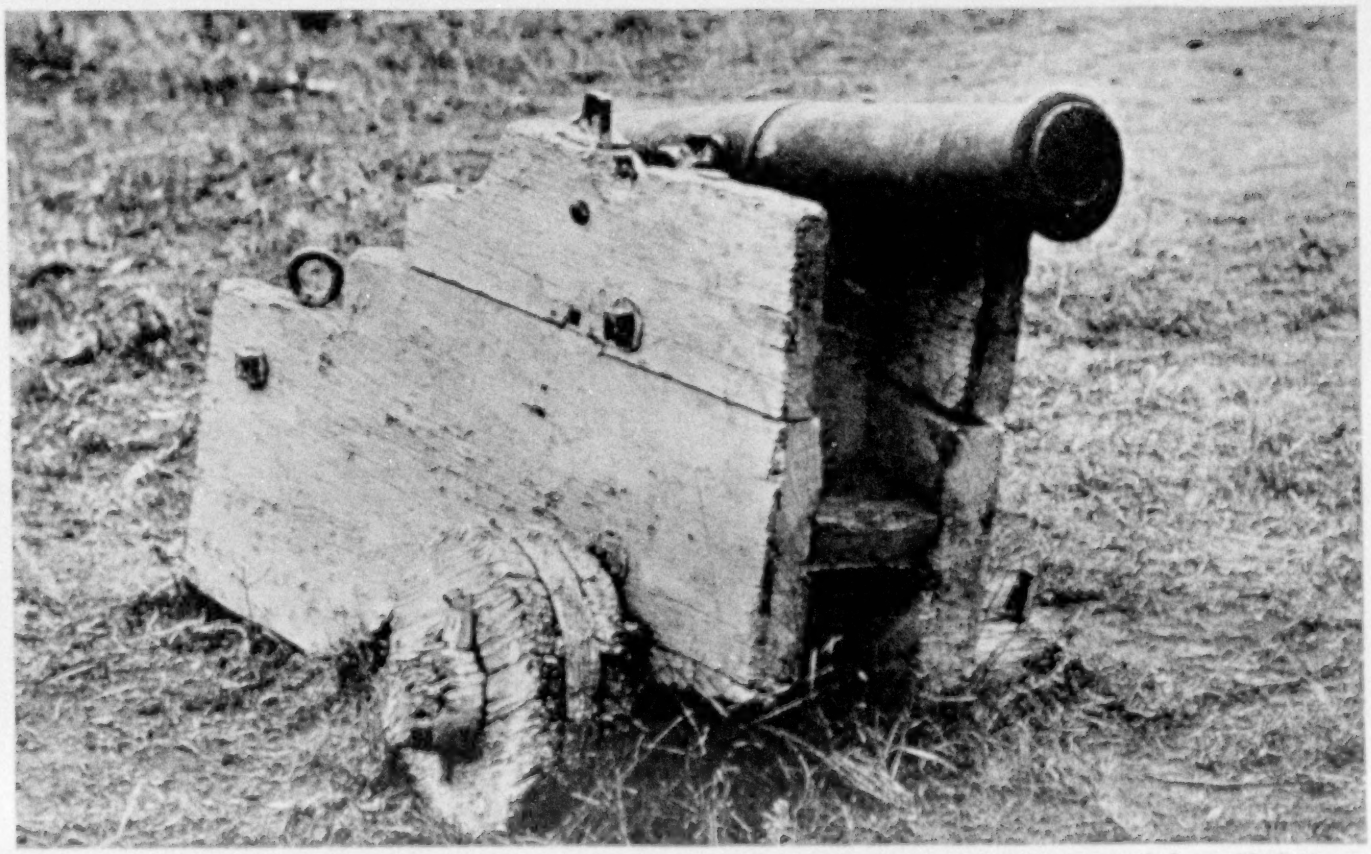
In the midst of this musing about history my skiff struck on a snag and hung there, side on to wind and current. Water dashed into her till the snag bent down and let her swing off without capsizing.

I was swept downstream a mile before bailing out enough water to survey for damages—only a long scratch and a round dent at the point of first impact. I had had no chance for a good look at Clark's shipyard. Sentimentally, I was sorry. I wanted to land and pretend to look for

Photograph by Edwin L. Wisherd

VETERANS OF INDIAN WARS PLANT A MARKER ON RENO HILL, MONTANA

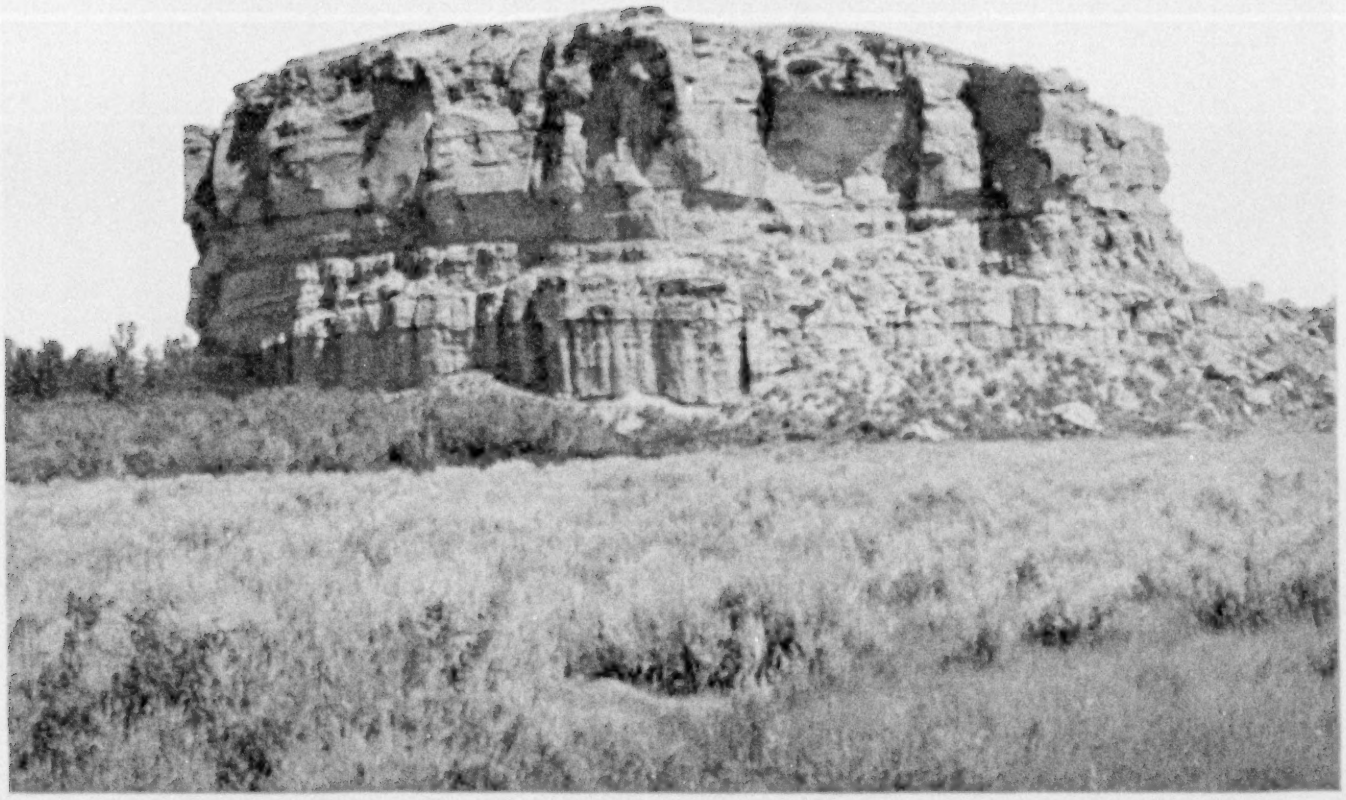
In the long, grim finish fight between whites and reds, no greater tragedy was ever staged than Custer's Last Stand. The years cannot wipe out memories of that fatal day in June, 1876, when fighting Sioux on the Little Big Horn slew Custer's command to the last man.



© L. A. Huffman

IN THE WILD AGE, THIS GRIM VETERAN PLAYED HIS NOISY PART

Dragging their clumsy cannon over mountain, stream, and desert; scattering their bones from the Big Horn to Puget Sound, from the Bad Lands down to Death Valley, the fighting pioneers held their stubborn way when the West was young. This is a Fort Stevenson relic.



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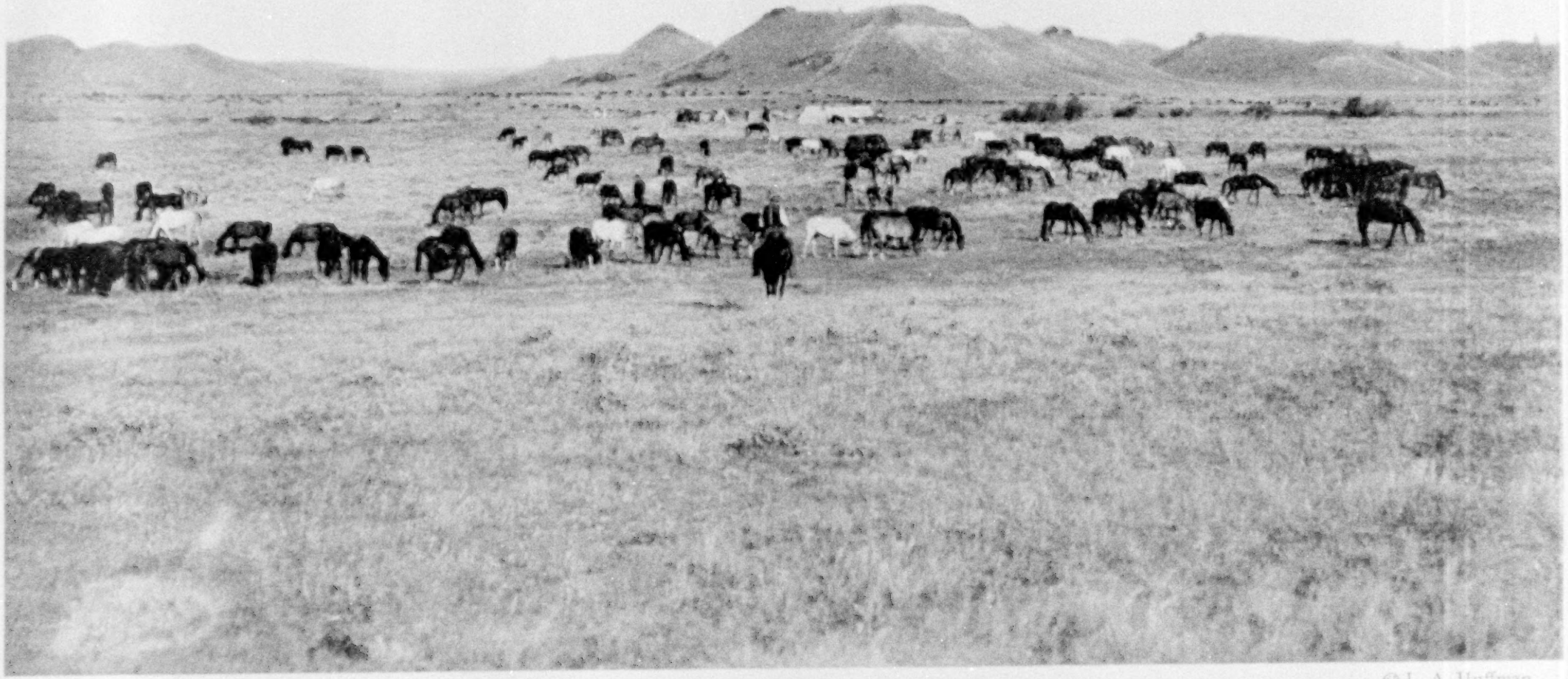
POMPEYS PILLAR, BETWEEN PRYOR CREEK AND THE BIG HORN

Like some ruined castle, this great rock forms a conspicuous landmark on the Yellowstone. Captain Clark, of the Lewis and Clark Expedition, reported that "the Indians have carved figures of animals and other objects on the sides of the rock" (see text, page 85).

© L. A. Huffman

THE COTTONWOOD CABIN OF AN EARLY SETTLER ON THE UPPER YELLOWSTONE

Along with his gun, his knife, and traps, the early white brought, of course, his ax, and decades before wagons or trains hauled in sawmill machinery the pioneer hewed logs for his rude hut. Weeks of hardest work went into even a one-room cabin.



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BY ETERNAL VIGILANCE—AND GOOD SHOOTING—THE PIONEER SAVED HIS HORSES FROM THIEVING INDIANS

In this land of infinite distance—and mounted Indian enemies—to be left afoot was grave misfortune to the pioneer; hence the eternal strife between Plains Indians and settlers for the possession of horses. Often the same herd was stolen and restolen several times within a few months. These cattlemen are camped between the Tongue and Powder rivers, in Montana.

© L. A. Huffman

MAN'S TAME FLOCKS MULTIPLY NOW WHERE ONCE VAST WILD HERDS ROAMED

A shepherd, with his dog, waters his flock on the Powder River, Montana.

© L. A. Huffman

CATTLE NOW FORD THE POWDER RIVER WHERE ONCE BUFFALO CROSSED IN COUNTLESS THOUSANDS

Paths and trails, long ago worn deep in hard clay banks and hillsides, mark the routes followed to grass and water by mile-wide herds of buffalo. They ranged, in bewildering numbers, along the Yellowstone and its most southerly tributary, named the "Redstone" by Captain Clark because of the numerous red stones its shallow, muddy flood rolls along (see, also, text, page 91).

stumps of trees cut down for his dugouts! In truth, the river, altering its course every season for a hundred years, had probably washed out and remade the shipyard flat a score of times since Clark was there.

His party spent four days here building two dugouts. Indians stole 24 of their horses. The same fate later overtook all their herd, which Sergeant Pryor tried to drive overland to the Mandan villages on the Missouri.

Clark described his canoes as "twenty-eight feet long, sixteen or eighteen inches deep, and from sixteen to twenty-four inches wide." Lashed together, these must have made a clumsy but very serviceable craft. Considering weight and type of boat, their first day's run from Rapids to the mouth of Pryor Creek was a remarkable one.

In the journal of his first day on the river, Clark writes: "At the distance of a mile from the camp the river passes under a high bluff for about 23 miles, when the bottom widens on both sides." I always remember this as the most beautiful stretch of stream I saw between the Rockies and the Mississippi.

The bluffs varied in natural color from gray brown to reddish black. Moss, lichens, and mineral stains from the hills behind tinted their faces with streaks of various shades, all blended like delicate pasteling. The main stream usually runs close up against the bluffs; but numerous side channels, sprawling over the verdant flats opposite, form many small islands, all shaded with tall cottonwoods, lush with new grass and brilliant with wild flowers.

At first I gave the bluffs a wide berth, especially at points where the current went swirling beneath the painted overhang in sinuous coils of green and white. It was the cavernous growls and rumbles, magnified by the sounding board of the cliff, that made me chary of venturing nearer.

THE SKIFF PLAYS HIDE-AND-SEEK WITH RIVER AND BLUFF

But when a sudden side-swiping squall forced me under an overhang, I found the river growls meant no harm. Swift as it was, the water, from the inner depths of the cliff caverns, tended to force my boat out rather than to draw it in. So my courage rallied and I played hide-and-seek with the river and cliffs for the next 20 miles. This was most opportune, as it chanced. The cliff's overhang gave me cover from the worst of the rain squalls which now swept the river. All in all, here was one of the most novel and delightful bits of boating I have ever known.

The effects of an unusually high spring rise became evident as I neared Billings. New channels had been scoured and thousands of cottonwoods and willows uprooted and stranded on shallow bars, but now and then some sprawling giant had anchored itself squarely in mid-channel. It took no end of care to avoid them.

There was rough running in my last hour in the gathering darkness. I missed the channel every few minutes, because the Yellowstone had run off and left me on a streak of wet rocks and gravel. With a heavier boat I should have been marooned, but it was easy to drag my little tin shallop on to where enough water trickled to lead the way back to the main channel.

BILLINGS IS THE METROPOLIS OF THE YELLOWSTONE

Rising bright lights told now that I neared the outskirts of Billings. The current ran swiftly, and around a wooded bend I cruised into slack water above a dam.

On a white stretch of beach I landed. Portaging the dam in the morning was simple; against just such emergencies I had planned my featherweight outfit. A wooden skiff the size of my steel one would have required four men to lift it. I managed my shallop alone. Five minutes sufficed to drag it along the levee and launch it below the dam. Another trip brought down my bed and cooking stuff, and I was off on the river again. Such was the advantage of traveling with an outfit the complete weight of which, including the boat, was less than my own.

Billings is by long odds the largest town on the Yellowstone. In fact, I saw no city like it in size and vigor until at Sioux City I came to the first of the packing-house metropolises of the Missouri. Billings owed its first prosperity to cattle and sheep and its fine strategic position for distribution. Pastoral industries cut less of a figure to-day, but the town has continued to gain ground as the principal

Photograph by Lewis R. Freeman

MAKING A PORTAGE AROUND THE YELLOWSTONE DAM

In this craft the author rode and carried all his equipment. One is amazed at the great tonnage of goods moved on the crude keel boats, mackinaws, and other clumsy craft that were poled, sailed, and dragged with ropes in the early days of navigation up the Missouri.

Photograph courtesy U. S. Bureau of Reclamation

A TOMATO FIELD NEAR SAVAGE, MONTANA

To the fur trader and northwest pioneer, the lack of fruit and vegetables was a constant hardship. How these "mountain men," trappers and traders, lived on meat alone is a gastronomic marvel. To-day, by irrigation under the Lower Yellowstone Project, extensive acreage is planted to alfalfa, sugar beets, and cereals.

© L. A. Huffman

BREAKING CAMP IN A MONTANA ROUND-UP

To brand calves, to cut out cattle for fattening or for market, the cow outfit moves each spring and fall from herd to herd, the chuck wagon making camp where water, fuel, and feed permit. From here riders work out, alone or in pairs, in quest of cattle. This camp is among the red hills on Tongue River, near Miles City.

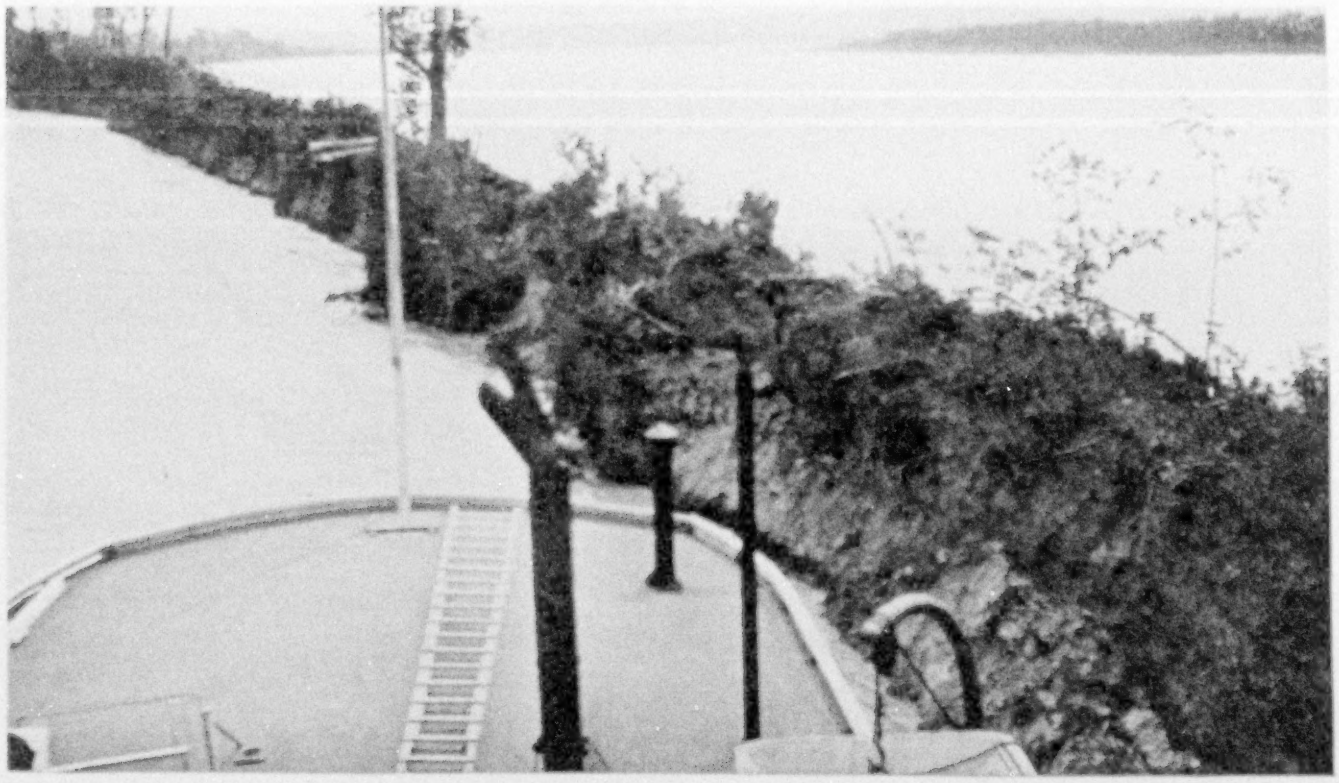
distributing center for western Montana. That, with farm and power development, has brought mills and factories, and the city now ranks high among the manufacturing centers of the Northwest.

It was at a point below Billings that Clark ferried Sergeant Pryor and the last of their pack animals across the river for the attempted overland journey to the Mandan villages. Here, also, is the point that is said to have been the limit of early steamboat navigation on the Yellowstone. On June 6, 1875, Capt. Grant Marsh, surveying the river in the *Josephine*, reached a bar which he estimated was 46 miles above Pompeys Pillar, 250 miles above the Powder River, and 483 miles above the mouth of the Yellowstone.

The last rough water through which the *Josephine* was warped was named "Hell Roaring Rapids." Just above it the name of the steamer was carved upon the trunk of an ancient cottonwood, as the point farthest west for steam navigation on the Yellowstone. I searched long, both for the historic cottonwood and for Hell Roaring Rapids, but quite in vain. The tree doubtless succumbed to floods or old age long ago, while it is probable that the riffle with the infernal name was wiped out when the power dam was built.

POMPEYS PILLAR IS THE YELLOWSTONE'S CHIEF LANDMARK

A day's run from Billings carried me to an eddy above Pompeys Pillar, the most outstanding landmark on the Yellowstone. Clark tells how he halted "to examine a



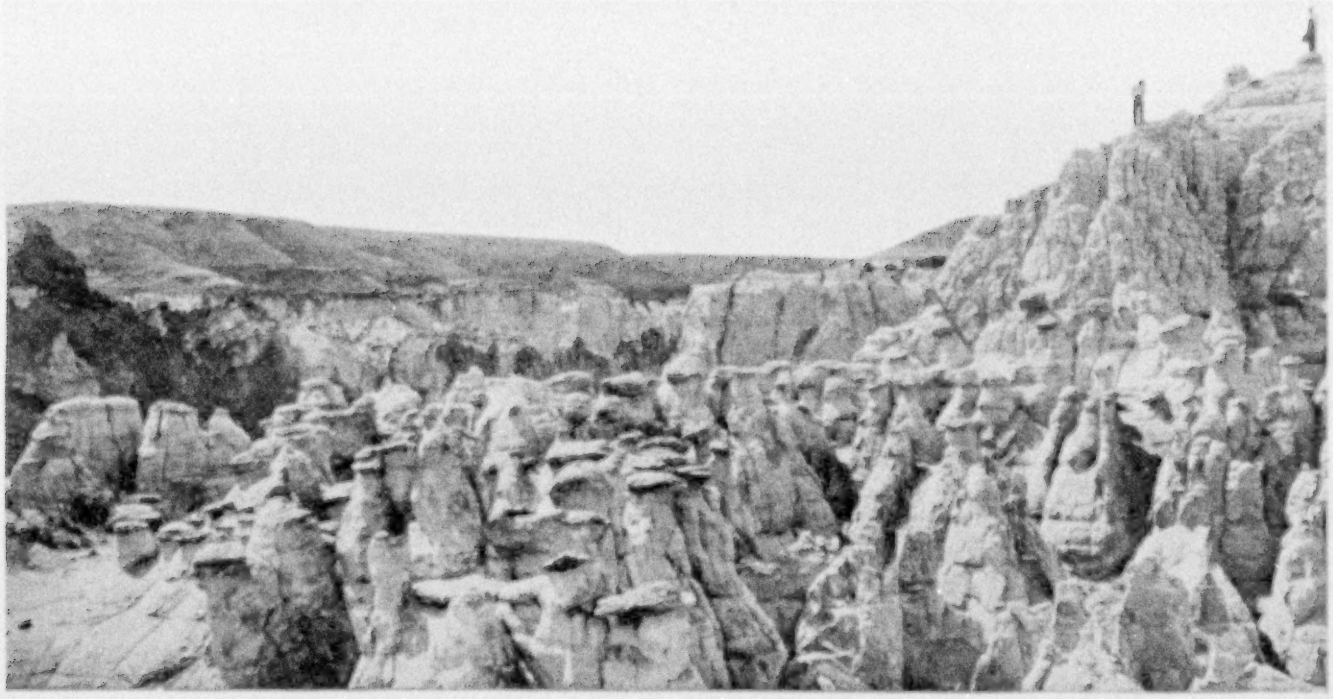
Photograph courtesy U. S. Army Engineers

A FREAK OF NATURE ON THE UPPER MISSOURI

At the Trenton Peninsula, in North Dakota, the river made a sharp curve. The point of land was gradually cut away by the water's action until, a few days after this picture was taken, it was completely severed and the resultant cut-off shortened the course of the river by four or five miles. The photograph was made from the deck of a snagboat.

A PRIMITIVE MISSOURI RIVER APARTMENT HOUSE

The turf dwellings built by the Mandan Indians are substantial structures and frequently house four or five families. Over a sturdy frame of logs a network of osiers is woven, and this in turn covered with sod, well beaten to make a waterproof roof and walls.



Photograph courtesy U. S. Army Engineers

FANTASTIC FORMATIONS NEAR THE MOUTH OF THE LITTLE MISSOURI

In parts of North and South Dakota erosion has produced forms as weird as those to be found in the Grand Canyon. It was this region between the Yellowstone and the Little Missouri that General Alfred Sully, the Indian fighter, picturesquely christened "Hell-with-the-Lights-Out" (see text, page 91).

Photograph from Lewis R. Freeman

THE AUTHOR SWAPS YARNS WITH FELLOW VOYAGERS

Bismarck, capital of North Dakota, is a city of about 10,000 people. Perhaps the author and the occupants of the house boat to which his tiny craft is moored are telling "weather stories," for the annual temperature range at this little city is not infrequently 147 degrees.

Photograph from Lewis R. Freeman

AT THE GRAVE OF SITTING BULL

While not a great warrior, this Sioux chieftain was one of the brainiest of Indian leaders; but he pitted himself against the inevitable tide of the white man's advancing civilization, and lost. He was shot by Indian police sent to capture him in 1890. His grave is on the Standing Rock Reservation just north of the line between the Dakotas (see, also, text, page 116).

very remarkable rock situated in an extensive bottom on the right, about 250 paces from the shore. It is nearly 400 paces in circumference, 200 feet high, and accessible only from the northeast, the other sides being a perpendicular cliff of a light-colored gritty rock. . . . The Indians have carved the figures of animals and other objects on the sides of the rock, and on the top are raised two piles of stones." Captain Clark, after writing down a description of the country on all sides, marked his name and the date on the rock (see illustration, page 79).

Add the telegraph poles of a distant railway and a picnic booth littered with watermelon rinds, and Clark's description of what was unrolled to him from the top of Pompeys Pillar would stand to-day. I located the place where his name had been carved, by a grating which the Northern Pacific engineers had erected to protect it from vandals; but I failed to find any trace of the letters themselves.

I passed the mouth of the Big Horn in mid-forenoon of the following day. The river was known in a vague way, through the Indian accounts of it, even before the time of Lewis and Clark; but the first settlement on it was the trading post which Manuel Lisa erected there in 1807. It was to this point that John Colter returned after crossing Yellowstone Park—the first white man to see the land of the hot springs and geysers (see, also, text, page 113).

Post after post was founded at the confluence of the Yellowstone and Big Horn until, in the seventies, it became the base of operations for the Army in the greatest of our Indian wars. In comparison with the broad, rolling tide of the Yellowstone, its tributary seemed shallow and of no great volume—the last place in the world for a river steamer to venture with any hope of going its own length without grounding.

IN THE SHADOW OF THE CUSTER MASSACRE

And yet, I reflected, the Big Horn could have been scarcely higher on that sultry Sunday afternoon of June 25, 1876, when

Capt. Grant Marsh, acting on orders from General Terry, sparred and warped and crabbed the wonderful old *Far West* up 25 miles of those rock-choked, foam-white rapids. The skies to the south were black that day with rolling smoke clouds. Under their shadows five companies of the Seventh Cavalry were paying with their lives for the rashness of their brave but hot-headed commander. The next day the *Far West* reached, passed, and returned to the mouth of the Little Horn. It was there a half-crazed Crow scout, all but speechless with terror, brought word of the Custer massacre.

On the morning of June 30, with Major Reno's wounded aboard, the *Far West* cast off for her epic run to Fort Lincoln (see, also, text, page 114).

Crabbing upstream with supplies was one thing, floundering down with a shattered human cargo quite another. But Captain Marsh drove her through. I tried to imagine the relief her skipper must have felt as he rounded that last bend above where I now saw a railroad bridge, and headed his craft into the deep, clear channel of the Yellowstone.

The *Far West* broke all upper river records for speed in her run to Fort Lincoln and the nearest hospital. Captain Marsh's feat in saving Reno's wounded by his masterly navigation is the one bright bit of silver lining on the black cloud of the massacre on the Little Horn.

Photograph by Lewis R. Freeman

A SYMBOL OF THE WHITE MAN'S GRATITUDE

Sacágawea deserves to stand with Pocahontas in American history, for her courage and devotion were no less a boon to Lewis and Clark than was the Virginia maiden's loyalty to Captain John Smith. By her own efforts she guided the explorers safely through unbelievable hardships, and through her influence with her brother, a Shoshone chieftain, enabled the expedition to procure the ponies without which they could never have crossed the Divide. One of her descendants served as a model for this statue, which stands in the State capitol grounds at Bismarck, North Dakota.

At the mouth of the Rosebud I passed another important rendezvous of the Sioux campaign. Custer had departed from here on the march which was to finish upon the Little Horn. All of the letters written by his command were put in a bag and started by boat for Fort Buford. But its crew, unfamiliar with boating on the Yellowstone, overturned their skiff in the first rapid, drowning themselves and losing the mailbag. Per-

Photograph by Lewis R. Freeman

A SOUTH DAKOTA FARMER'S FAMILY INSPECTS THE GOOD SHIP "LIVINGSTON"

The author's visits provided a break in the monotony of life for more than one farm home along the rivers he traversed. South Dakota's fertile, glacial soil has proved the land of opportunity to pioneers of more than thirty nationalities. Although wheat was originally the all-important crop, irrigation has made possible successful diversified farming.

sistent dragging brought up the bag, however, and saved for relatives and friends the last letters of the men so soon to fall before the Sioux and their allies. These included Custer's last letter to his wife, and a letter from young Boston Custer to his mother.

MILES CITY, AMERICA'S HORSE MARKET

A three-hour run next morning brought me to Miles City, below the Tongue River. Its red-brown current tinged the Yellowstone for a mile below their junction. Clark camped at the mouth of the Tongue, and his painstaking description of this Yellowstone tributary might have been written to-day:

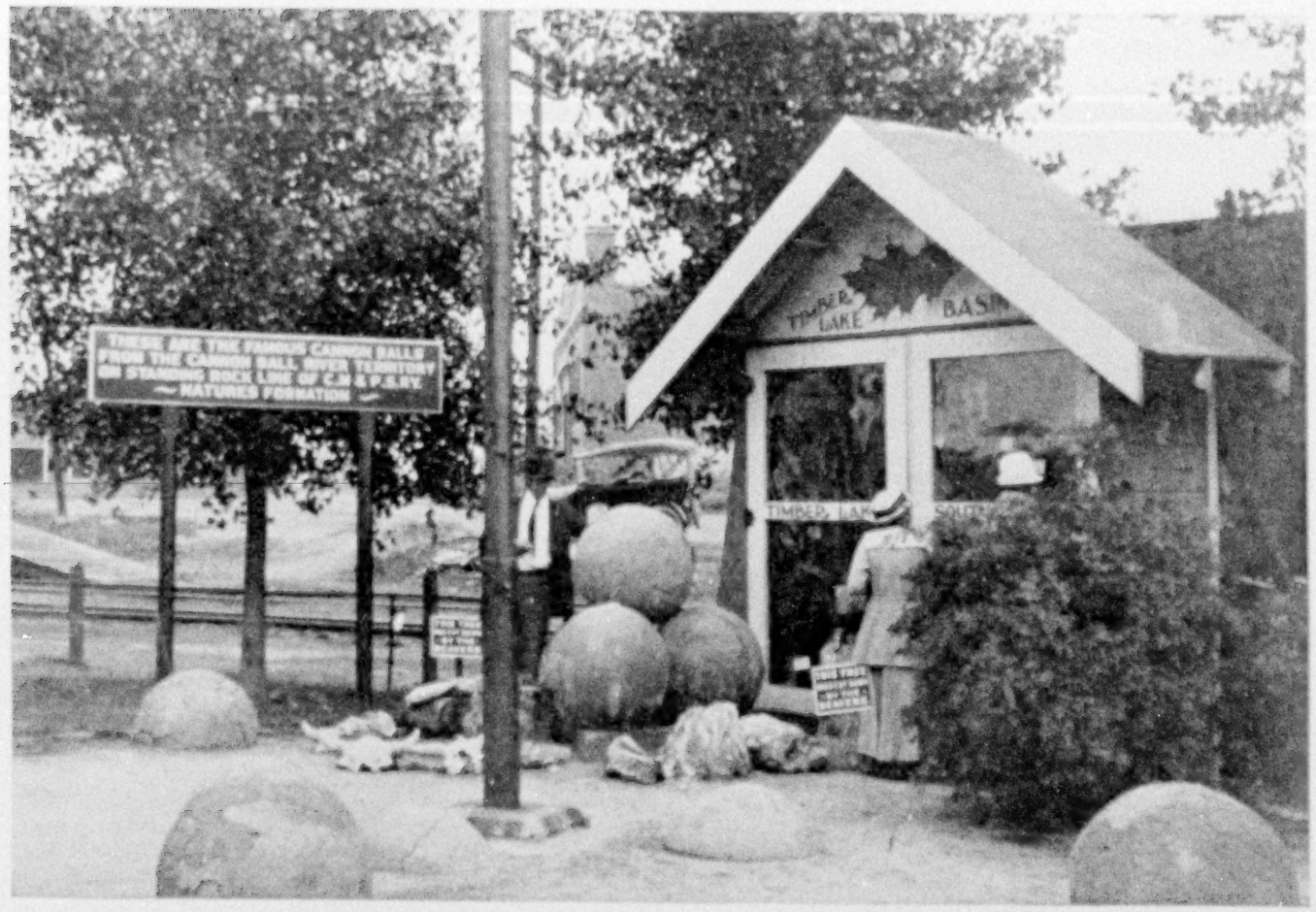
"It has a very wide bed. . . . The water is of a light-brown color and nearly milk-warm. It is shallow, and its rapid current throws out great quantities of mud and some coarse gravel. . . . The warmth of the water would seem to indicate that the country through which it passed is open and without shade."

Of all cities on the Yellowstone, none has more character than Miles City. Not so beautifully located as Livingston, not quite so metropolitan as Billings, there is something in the fine, broad streets of Miles that suggests the frank, bluff, open-heartedness of the cowboy straight from the ranges.

Miles City owes its early importance to sheep and cattle and is still the chief market for range horses in America; also, it suffers one of the greatest ranges of temperature of any place in the United States. From 65 below to 112 above!

An hour's run from Miles City on the morning of July 8 took me within sight of whitecaps on Buffalo Rapids. Clark first named these rapids "Buffaloe Shoal" because he found a buffalo there.

Buffaloe Shoal was the first of what one might call Clark's "menagerie series" of rapids. The next, 20 miles below, was named "Bear Rapid" because a grizzly had been observed in the vicinity. The third, two miles below the mouth of the Powder, was christened "Wolf Rapid" because he saw a wolf there. Clark de-



Photograph by J. R. Bryant

THESE CANNON BALLS ARE SEVERAL MILLION YEARS OLD

Mobridge, South Dakota, displays these remarkable stones, which resemble Cyclopean missiles. They were formed, often around some fossil object, in the misty ages when the dry Dakotas were beneath the sea (see, also, text, page 114).

scribes Bear Rapid as "caused by a number of rocks strewed over the river; but though the waves are high, there is a very good channel on the left, which renders the passage secure." Wolf is dismissed as a "rapid of no great danger."

These rapids were easily navigated in a light skiff; but old steamboat skippers experienced more trouble among these submerged reefs of black rock than at any other point on the Yellowstone or Missouri.

The Powder is the last of the great southerly tributaries of the Yellowstone. Sprawling over a shifting estuary in several runlets, it looks now much as it must have when Clark wrote:

"The water is very muddy, and, like its banks, of a dark-brown color. Its current throws out great quantities of red stones, and this circumstance, with the appearance of the distant hills, induced Captain Clark to call it the Redstone, which he afterward found to be the meaning of the Indian name, Wahasah."

At this camp Clark found the buffalo prowling so close during the night that "they excited much alarm, lest in crossing the river they should tread on the boats and split them to pieces."

Below the Powder the Yellowstone flows for some distance through a burnt, barren, savage-looking country with little vegetation, few streams, and miles of fantastic castles, kiosks, and minarets of black and red rock. It is desolate; yet less sinister than those Bad Lands between the Yellowstone and the Little Missouri, which grim old General Sully, chasing the Sioux six months over scorched rocks, described as "Hell-with-the-Lights-Out."

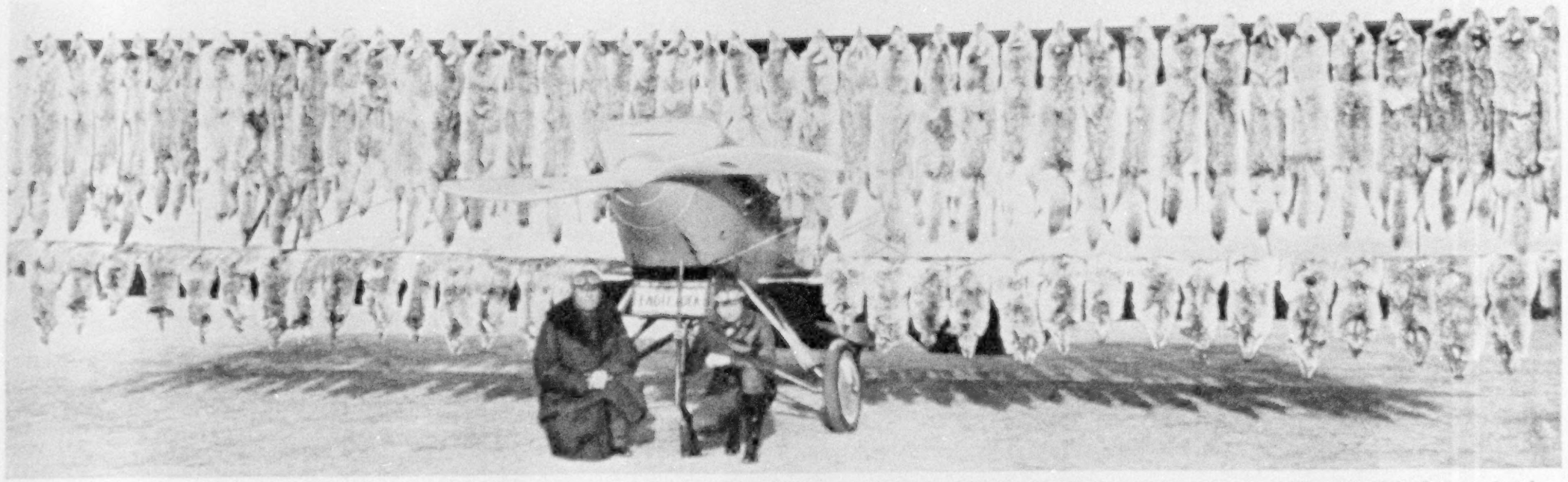
GLENDIVE, MORE THAN 40 YEARS AGO, WAS A FRONTIER CAMP

Glendive, standing where the Northern Pacific leaves the river to cut across the Bad Lands to North Dakota, is the adopted child of the railroad. Glendive Creek was a stopping place in steamboat days of Indian campaigns; but there was never much of a settlement at this point until railway building began, in the late seventies. The first train pulled into Glendive almost forty years to a day previous

© L. A. Huffman

MANDAN CHILDREN NEAR THE INDIAN SCHOOL, ABOVE THE MOUTH OF THE LITTLE MISSOURI

Long ago the ancestors of the Mandans lived in the Mississippi Delta region. They migrated northward, and for at least three centuries the tribesmen have dwelt on the banks of the Missouri, gradually working their way up the stream. They received the early white explorers hospitably.

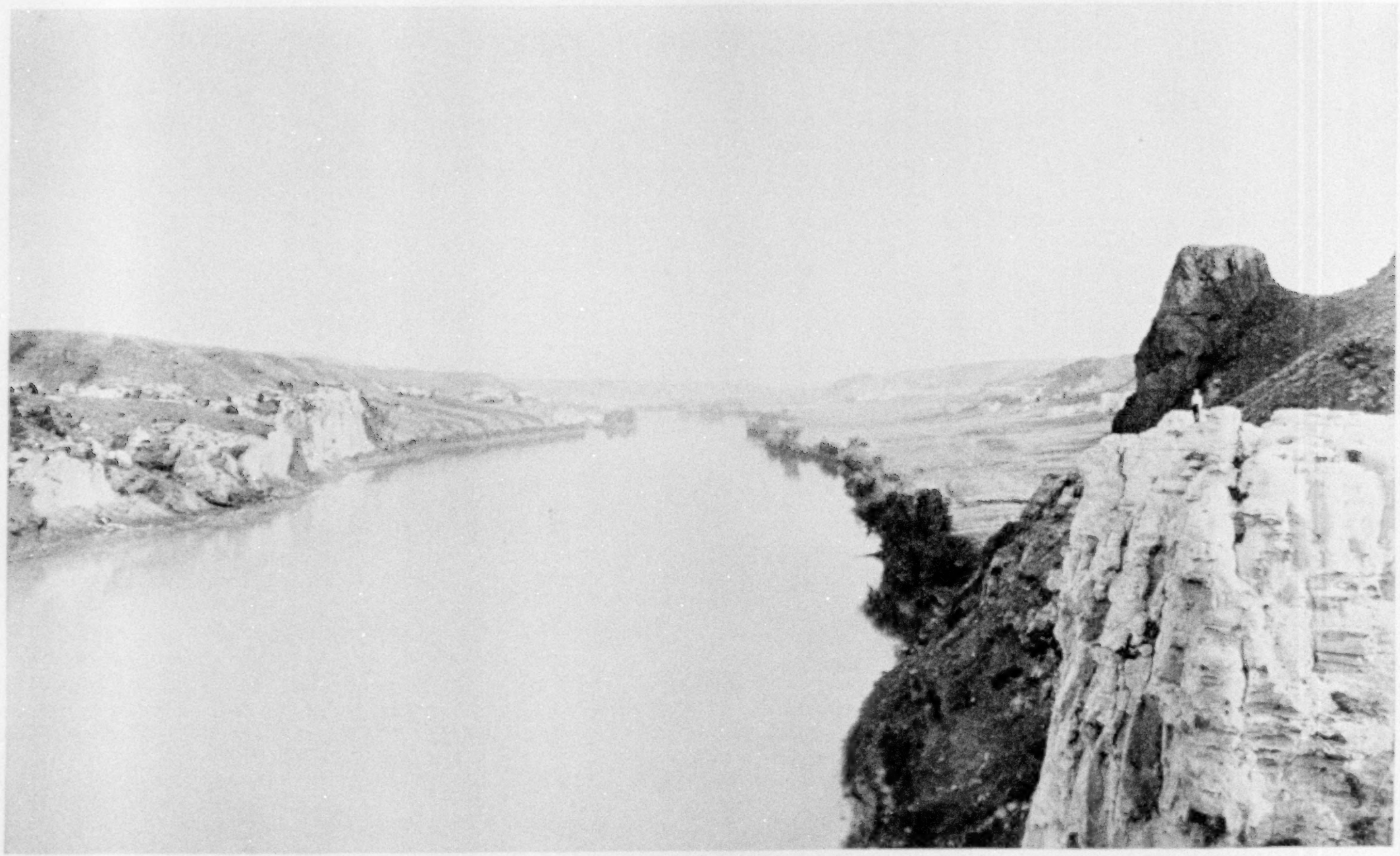


Photograph by International

FROM HUNTERS AFOOT OR AHORSE, THE FLEET COYOTE WAS SAFE, BUT AGAINST MAN'S MECHANICAL HAWK HE HAS NO CHANCE

With one to pilot while the other works an automatic shotgun, these hunters of Rapid City, South Dakota, scoured the plains with profit; for the State pays a bounty for coyote pelts, 76 of which decorate this plane, representing six weeks' hunting.

XUM



Photograph courtesy U. S. Army Engineers

WHERE THE "BIG MUDDY" HAS TO TOE A SHORE LINE

Along this part of its course the Missouri is better disciplined than in its lower reaches, where capricious currents play queer pranks with the shores. Along this stretch of stream in South Dakota the banks are made of sterner stuff and resist the attacks of the waters so successfully that the river follows a pretty definitely fixed course.

Photograph courtesy U. S. Army Engineers

LIKE THE STORIED CASTLES ON THE RHINE, FANTASTIC TOWERS AND TURRETS OF NATURAL ROCK STAND GUARD ALONG THE MISSOURI BELOW THE MOUTH OF THE CHEYENNE

Photograph courtesy U. S. Army Engineers

FROM THESE IMPOSING PALISADES ABOVE THE MOUTH OF THE GRAND, THE INDIANS OF SOUTH DAKOTA TOOK POT SHOTS AT STEAMERS PLYING THE MISSOURI IN EARLY DAYS

© O. A. Vik

HIS FORBEARS RULED THE DAKOTAS

Chauncey Yellow Robe, nephew of the wily Sitting Bull, is now a Government employee in South Dakota. There are more than 23,000 Sioux living within the State on reservations aggregating more than 6,000,000 acres.

to my arrival by boat. I found a fine, clean, prosperous little city of several thousand inhabitants, where the first train crew saw a frontier camp, living on buffalo meat.

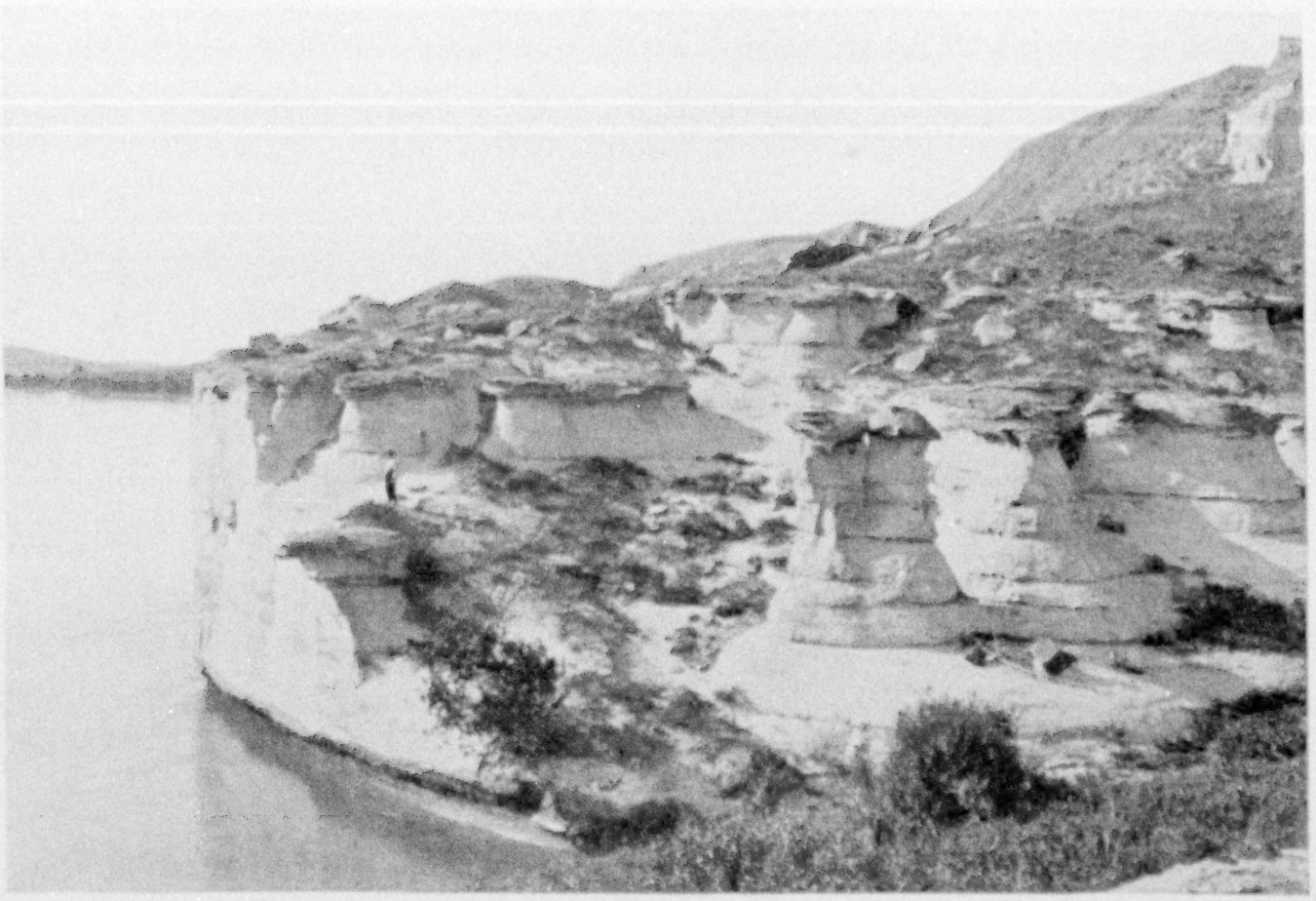
Below Glendive I was struck by the contrast between verdant irrigated fields of alfalfa and clover and the former howling wilderness Clark described. Nowhere in his journey back and forth across the continent had he seen such variety and numbers of animals. It must have been somewhere below the present site of the Intake Dam that buffalo began to appear in vast numbers. As Clark's boat floated down, "a herd happened to be on their way across the river. Such was the multitude of these animals, that although the river, including an island, over which they passed was a mile in length, the herd stretched as thick as they could swim, completely from one side to the other, and the party was obliged to stop for an hour."

Forty-five miles below, two other herds as numerous as the first blocked the way again. The following day they found the "buffalo and elk, as well as the pursuers of both, the wolves, in great numbers." Moreover, "the bear, which gave so much trouble on the head of the Missouri," were equally fierce in this quarter. Numerous herds of bighorn were also seen on some rugged hills to the southeast.

In all the records of western exploration and travel I can recall nothing that suggests such an astonishing number of large animals in any other region.

Pestered by mosquitoes, I sought refuge that night at a riverside ranchhouse. The rancher and his wife had spent most of their lives in Washington, D. C., in department service. Tired of working seven office hours a day, they bought a ranch under the Yellowstone project and started working sixteen hours a day. So far, their farm had cost more than it earned; but, like all farm beginners, they kept their eyes on the rainbow. I slept on their breeze-swept porch, armored against the enemy with woven copper mesh.

Before I pushed off in the morning my



Photograph courtesy U. S. Army Engineers

WIND-CUT RAMPARTS GUARD THE MISSOURI IN ITS COURSE THROUGH DAKOTA BAD LANDS

friends showed me their fields of alfalfa and sweet clover ready to cut. Prices were good, they said; now they ought to show a profit. I have often wondered just how those green, fragrant fields looked ten hours later, due to certain inequalities of pressure already making their differences felt in a lightning-shot murkiness hanging low on the northeastern horizon.

I was aware of the heavy humidity of the atmosphere the moment I pulled out into the slow current of the broadening river. There was plenty of air stirring, but it shifted oddly. It would swoop down over the banks in a sudden gust, blow downriver for a few moments, then turn on its heel and come breezing back.

In this choppy, ominous atmosphere I rode for some hours.

FISH SNATCH FREE LUNCH OF GRASSHOPPERS

One offshore gust fairly covered the river with grasshoppers, apparently from a flight making for the alfalfa patches. To grab this juicy free lunch, scores of fish broke water about my boat.

About mid-afternoon I noticed in the northeast a solid bank of swiftly advancing cloud. For a while its front was smooth and rounded like the rim of a tin plate. Halfway up to the zenith this front began to reveal itself as a wind-driven line of madly racing nimbus, black and sinister. Ignorant of the hellbroth a-brew, I worried not; I did not even edge away from mid-channel.

Then, all at once, a long, torpedolike cloud shaft broke from the mass and aimed in a direction that would bring it right over my head. Swelling monstrously, the black arrowhead of the storm now passed overhead to the west. Its shape suggested the picked skeleton of a giant mackerel—just a backbone and ribs!

The red sun dimmed behind flying clouds. A coppery glare cast a weird sheen on the river. My serenity was blotted out with the sun. I recalled then where I had known that ghostly yellow light before—in a South Sea hurricane! The shriek of wind, the roar of surf, and the crack of breaking coco palms. There were no coco palms here to snap, but there came the roaring wind!

Pulling in a dead calm myself, in a second I saw the river and air at the bend turn almost white. Wind shot from be-

Photograph from Irwin D. Aldrich

SUCH TUMULTUOUS SKYLINES LEND SIGNIFICANCE TO THE NAME "BAD LANDS"

Approaching Cedar Pass, on the White River, in the South Dakota Bad Lands.

"HE'LL GO THREE POUNDS OR I MISS MY GUESS!"

Barrel nets are used by Missouri River fishermen below Omaha. The floating crate in the foreground, with the sliding top, is used to keep fish alive until they can be marketed.

ROCKABYE BABY IN A FISHNET

When the nets are not doing duty in the waters of the Missouri they can be used to good purpose as a safe resting place for the family offspring.

Photographs by Lewis R. Freeman

Photograph by Lewis R. Freeman

THE "LIVINGSTON" LEAVES SIOUX CITY

Located at the junction of the Big Sioux River with the Missouri, this city of more than 75,000 inhabitants is an important distributing point for the rich farming area that surrounds it. Extensive meat packing, flour milling, and steel manufacturing industries are centered here.

CHOPPING TOPS FROM BEETS IN A NEBRASKA FIELD

A few decades ago the sugar beet was almost unheard of in our West. Now it pays wages to many communities. Here is seen a family unit under contract to work the beet crop by the acre.

hind a bluff to scoop up hunks of the river and throw them across the flats. I swung and headed for a sandbar on my left. The air was coiling and twisting as I landed; but that giant cloud-shaft, like a big fish skeleton, was passing me by and circling the bluffs beyond.

Quickly I dragged my skiff on to the bar and snugged it down under a tarpaulin. Its weight might keep the boat from blowing away, I thought. Then I drove oars into the sand with an ax and ran lines to them from bow and stern, like land moorings.

Just then a great gust, hard and solid as a moving box car, caught me from behind. I fell forward and sprawled flat. I slowly struggled to my knees and started crawling back to the boat. It wasn't so bad after all, I told myself. Leaning up against the wind that way was rather good fun. I turned my head and cast a side glance over toward the farmhouses back of the bluffs. But that was my last move of nonchalance for some time!

Photograph by Lewis R. Freeman

A FISHER MAIDEN OF THE MISSOURI

That one glance photographed three things in memory: a grove of willows flattened almost against the earth; two women, with wondrously billowing skirts, crawling along the side of a house toward a door, and a flimsy, unpainted outbuilding flying in pieces across a corral full of scurrying horses.

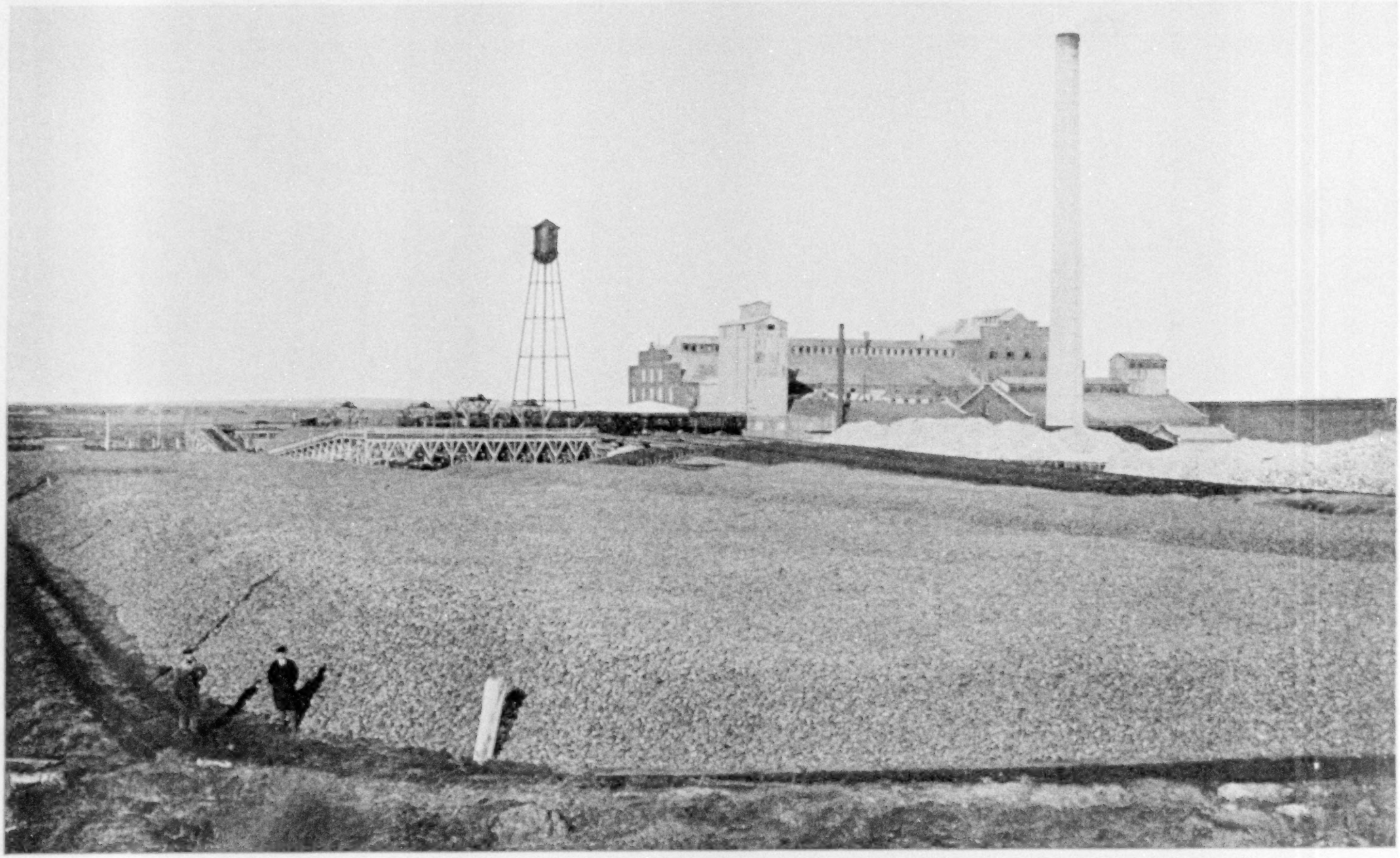
IN THE MATHEMATICAL CENTER OF A "TWISTER"

Like spattering shrapnel, a salvo of hail raked my face. With growing concern, I saw that the forerunning cloud tongue, which had first come charging around from the east, was now heading straight back! This meant that I was in almost the mathematical center of a real "twister."

Then I saw loosely built structures on the bluff go flying off like autumn leaves. Primal chaos clapped down on me, as thunder crashed.

Rapidly it grew darker. The thunder did not come into action battery by battery, but seemed to open all of a sudden with a crashing barrage all along the line. Flashes and crashes were simultaneous.

Then the moorings broke loose, and my skiff came right over on top of me. By the grace of Providence it hung there instead of going on rolling; but the gallons of hail that drained from the boat on to me seemed to come straight from the North Pole. I was still spitting sand



A WESTERN NEBRASKA BEET-SUGAR MILL, WITH A PILE OF BEETS WEIGHING 22,000 TONS

Once sugar was so rare that only the rich knew its taste; and they could afford it but sparingly, as an occasional sweetmeat; now it bulks large in world trade, like flour and coffee. To meet his growing need for sugar, since cane thrives only in hot lands, man learned to make sugar from beets, which grow far to the north.

when, presto!—it was a warm summer afternoon again!

I was looking at the tail of the storm now, a storm that was rolling away across those verdant irrigated farms of the Yellowstone project and leaving a three-mile-wide swath of destruction in its wake.

It was an altered world that met the owllike blink of my sand-filled eyes. A big red barn and silo still loomed against the skyline above the bluff, but all windmills had slipped out of the picture, together with many wooden structures. Trees were broken off or uprooted in all directions. Thousands of acres of standing crops were beaten into the earth by hail. There lay the real tragedy of Thor's field day. I sensed the blank despair that must pervade the farmhouses beyond the yellow bluffs.

I climbed up, to see what havoc the cyclone had wrought. Fields were deep in water and liquid mud. Not a blade of grass was left standing. All that remained of alfalfa, oats, and corn was a tangled green mat half covered with slowly melting hailstones. Corn had not only been beaten flat, but the very stalks were crushed and shredded as if pounded by hammers.

In that sodden field of desolation, millions of mosquitoes had been battered to death by hail. Great masses of them, literally pulped, had been strained out of the water and collected against heaps of débris in the ditches. One could scoop them up by the handful.

THE AUTHOR JOINS A SEARCH PARTY FOR HIMSELF

At the first ranch I came to, the corrals were down, the barn partially unroofed, and the windowless house all but stripped of its shingles. I entered a half-wrecked kitchen to find three men just ready to go down to the river to "search for the body of a man who had drowned in the storm." I volunteered to join them—until a few more words revealed that it was my own anatomy which was to be searched for!

A gang of ditch-hands, before taking to cover, had seen a man pulling downstream into the storm. The last they saw of him he was trying to climb out on a sandbar, waves all about him. When the storm had gone on and they looked again, no trace remained of man or boat. My resurrection gave some hilarity to a trio of farmers, who needed a bit of comedy to take the edge off the tragedy of being "hailed out."

I was glad to accept the invitation of a big Norwegian to stay with him for the night and dry out. We spent the remaining hours of daylight boarding up windows and patching the roof. The plucky farmer was far from crushed, even though his crops were a total loss and he was borrowed up to the limit at the bank. The same fine courage in the face of disaster appeared to imbue other storm victims I met in the morning. They were all of pioneer stuff.

I resumed my voyage in a quiet current, in strange contrast to the wind-torn river of the day before. The air was drenched with the heavy odor of crushed vegetation. Never have I been assailed with such a flow of perfume as coiled and streamed about me as I drifted down the Yellowstone on the morning after the great storm.

DRIFTING DOWN THE CHANNEL OF THE BIG MUDDY

Coming out onto the broad, smooth-rolling Missouri from the swift, turbulent Yellowstone was like entering an arterial avenue from a cross-street. But the comparison is one of fancy only. Of actual traffic, there is practically none left on either river. My own little shallop was the only boat going anywhere on the Yellowstone that summer and almost the only one on the upper Missouri. I rested on my oars and let my boat drift, through cottonwood flats, down the winding channel of the Big Muddy.

The Vérendryes—the French-Canadian explorer and his two sons, traders—were undoubtedly the first white men to see the upper Missouri. They may have even seen the Yellowstone—no one knows. David Thompson, astronomer and explorer for the Northwest Company, came down from Canada in 1797 to the Mandan villages on the Missouri, below its junction with the Knife, but at that time there was little knowledge of what he saw, and so, when Lewis and Clark came along, they went into what was practically unknown country.

Going westward, these explorers continued up the Missouri to Great Falls and

Photograph by Louis R. Bostwick

UNLESS THE CURRENT SHIFTS OF ITS OWN ACCORD, THIS WHOLE FARM MAY GRADUALLY SLIP INTO THE RIVER

When the eccentric current turns against a bank and begins to cut it away, sometimes clumps of dirt 5 to 20 feet broad and up to 100 yards long are undermined and slip into the stream. Some of the finest farms in the Missouri Valley have been washed away in this manner.

Three Forks, made their way across the Continental Divide, and thence down the Columbia to the Pacific. Returning, Clark left the main party to follow down the Yellowstone, while Lewis back-tracked the original route up the Missouri. Rendezvous was made, almost exactly as planned, not far below the mouth of the Yellowstone.

Later, hunters and trappers crowded hard on the trail of Lewis and Clark. The Astor party left the Missouri at the mouth of the Grand; but the keel boats and mackinaws of Manuel Lisa, Ashley, and Henry were dragged on up the main river to the Rockies. Laughing, cursing, and fighting, men strained at the towlines to bring up trade goods, traps, and arms. Singing roisterers toiled at the oars to carry back the bales of precious furs. Bull boats and canoes of lone free trappers plied in both directions.

Man-powered craft were used well past the peak of the trapping period, and even the Arikara and other early Indian wars were supported by keel boat and mackinaw. Stern-wheelers plied the lower river in the California rush; but the great era of the Missouri navigation opened after gold was found at Alder Gulch,

Official Photograph, U. S. Army Air Corps

SEVENTY-FIVE YEARS AGO THIS PLAIN BELONGED TO THE INDIANS

Not until 1854 was a treaty concluded with the Omaha Indians which gave to white settlers title to what is now the city of Omaha. The discovery of gold in Colorado a few years later made the new city an important outfitting center, and when it became the practical—Council Bluffs was the legal—eastern terminus of the Union Pacific Railroad the foundation of its success was assured (see, also, page 119).

Montana, in 1863. Then "mountain trade" boomed for half a decade or more, with famous old skippers like Grant Marsh driving their wood-fired craft up to Fort Benton and back to St. Louis twice between break-up and freeze-up of the ice. But the Missouri was never again to know such men, such boats, or such trade.

RIVER BOATS NOW AS SCARCE AS BUFFALO

Steamers served ahead of railway building, which brought on the great Sioux finish fight in the seventies. Through those long sanguinary years steamers were the main support of Miles, Crook, Terry, and Gibbon. Then, gradually strangled by the very railways it had helped to build, "mountain trade" navigation became a thing of the past. The dying flicker on the Yellowstone was the use of old stern-wheelers to carry material for the U. S. Reclamation project, which closed the channel to navigation for all time.

Steamer navigation of the main Missouri felt a slight revival when an attempt was made to move North Dakota grain by water; but when this proved a failure the end was near. An irregular service in the vicinity of Bismarck, maintained

Official Photograph, U. S. Army Air Corps

THE STOCKYARDS OF OMAHA CAN ACCOMMODATE 50,000 CATTLE AND HORSES

As endless miles of luscious plains pasture once fattened the wild buffalo, so now vast herds of domestic animals thrive in the territory surrounding the metropolis of Nebraska. From this live-stock trade busy cities of the plain have developed. The stockyards at Omaha, covering more than 150 acres, are not America's largest; yet here, in one year, upward of 8,700,000 animals have been received.

now in the face of heavy odds, is all that remains of those splendid pioneering lines that plied so long between St. Louis and Fort Benton.

Now river steamboats are scarce as buffalo. The only difference is that the buffalo has gone forever. Steamers on the Missouri will return when freight can be carried in competition with railways and truck lines. This time will come; but the great cost of maintaining an adequate steamer channel through the shifting bottoms of the Missouri will make it somewhat remote.

In their reports, Lewis and Clark reiterated that the north bank of the Missouri, just above its junction with the Yellowstone, was a place "highly eligible for a trading establishment." Ashley and Henry, building a post upon the lowlands between the two rivers in 1822, were soon driven out by high water and caving banks. Fort William, built just below the junction, was also short lived.

THE "KING OF THE MISSOURI" RULED THE FUR TRADE

But Fort Union, built here by the American Fur Company of the Astors, became the most famous post in the history of the American fur trade. Here MacKenzie, a noted "bourgeois" (as the

Official Photograph, U. S. Army Air Corps

AËRIAL VIEW OF THE ARMY FIELD AT FORT CROOK

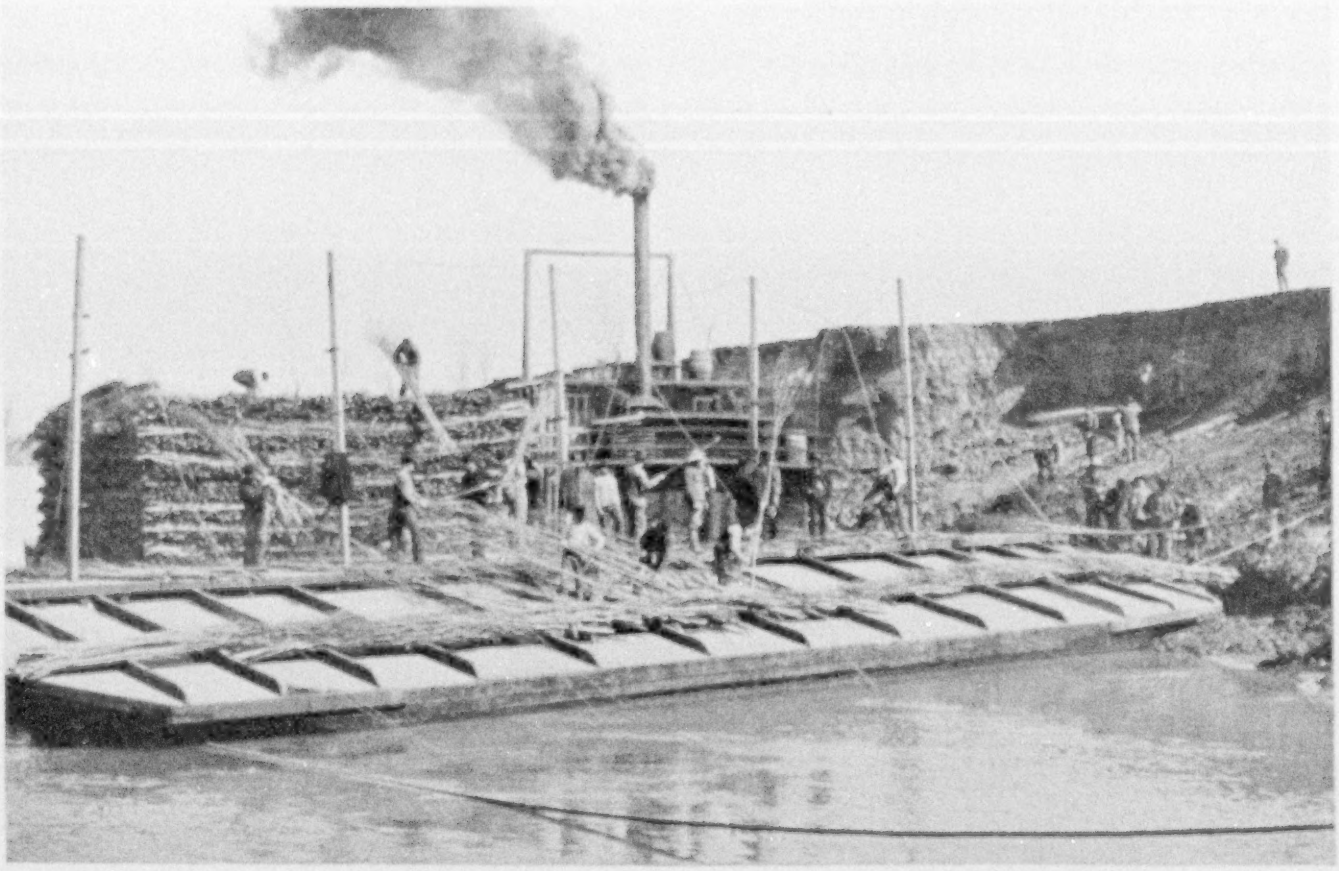
The Air Mail planes use this fine field, just south of Omaha, as one of the stations on their transcontinental route, the mail changing planes here, eastbound for Chicago and westbound for Cheyenne. The field is well supplied with lighting equipment to make night landings safe (see, also, "On the Trail of the Air Mail," by Lieut. J. Parker Van Zandt, in the NATIONAL GEOGRAPHIC MAGAZINE for January, 1926). Note the searchlight tower in the center of the picture.

managers of the trading posts were called), bore the proud title of "the King of the Missouri." His establishment was carried on in a regal way. Like the Hudson Bay factors, he had practically the power of life and death over Indians. A suit of old armor to impress his subjects on gala occasions and medals bestowed in reward of faithful service were items in the pomp and circumstance of his office.

Prince Maximilian, George Catlin, and Audubon, with many other scientists and explorers of that day, enjoyed the hospitality of old Fort Union, the passing of which in the late sixties marked the climacteric chapter of the American fur trade.

FORT UNION NOW A MEMORY

At risk of toppling overboard in the tumbling swirls of caving sandbars, I stood on a thwart and trained my glass on a gently rising slope west from the tiny river town of Mondak. Not even the blur of a crumbling bastion broke the skyline. Fort Union, like the mackinaws and keel boats which had served it, had become a memory; and Fort Buford, too,



PREPARING TO WEAVE A BRUSH MATTRESS

One of the most effective means with which to combat a river's depredations is a mat of woven willow brush properly placed and anchored along the shore. These mats, or "mattresses," are made by hand on barges so inclined that the finished products may be easily slid from the deck of the boat into the desired places in the water.

Photographs courtesy U. S. Army Engineers

THE FIRST LINE OF DEFENSE AGAINST THE RIVER

After the protection mattresses have been woven they are maneuvered until they overlap the shore and at the same time extend out into the water a considerable distance. The banks meanwhile have been properly graded with a hydraulic spray.

Photograph courtesy U. S. Army Engineers

"ANCHORING" THE BANKS OF THE MISSOURI

When the shores have been prepared and the mattresses properly placed (see illustration on opposite page) they are anchored in place by loads of rock ballast that weight down the sections left in the water and cause those sections overlapping the bank to cling firmly to it. Sometimes concrete is used in binding the mattresses to the bank.

once an important base in Indian wars, is now a matter-of-fact country town.

Settling to my oars again, I floated on down a river empty now of all but swirling brown water and the phantom fleets of the past.

With the Yellowstone behind me, such worries as had sprung from rapids, their rocks and sucking whirlpools, were over. I had only to refer to the report of the U. S. Army engineers to be reassured. This stated that the slope of the river did not vary from an even eighty-four hundredths of a foot to the mile for the whole distance of 1,760 miles from the Yellowstone to the Mississippi.

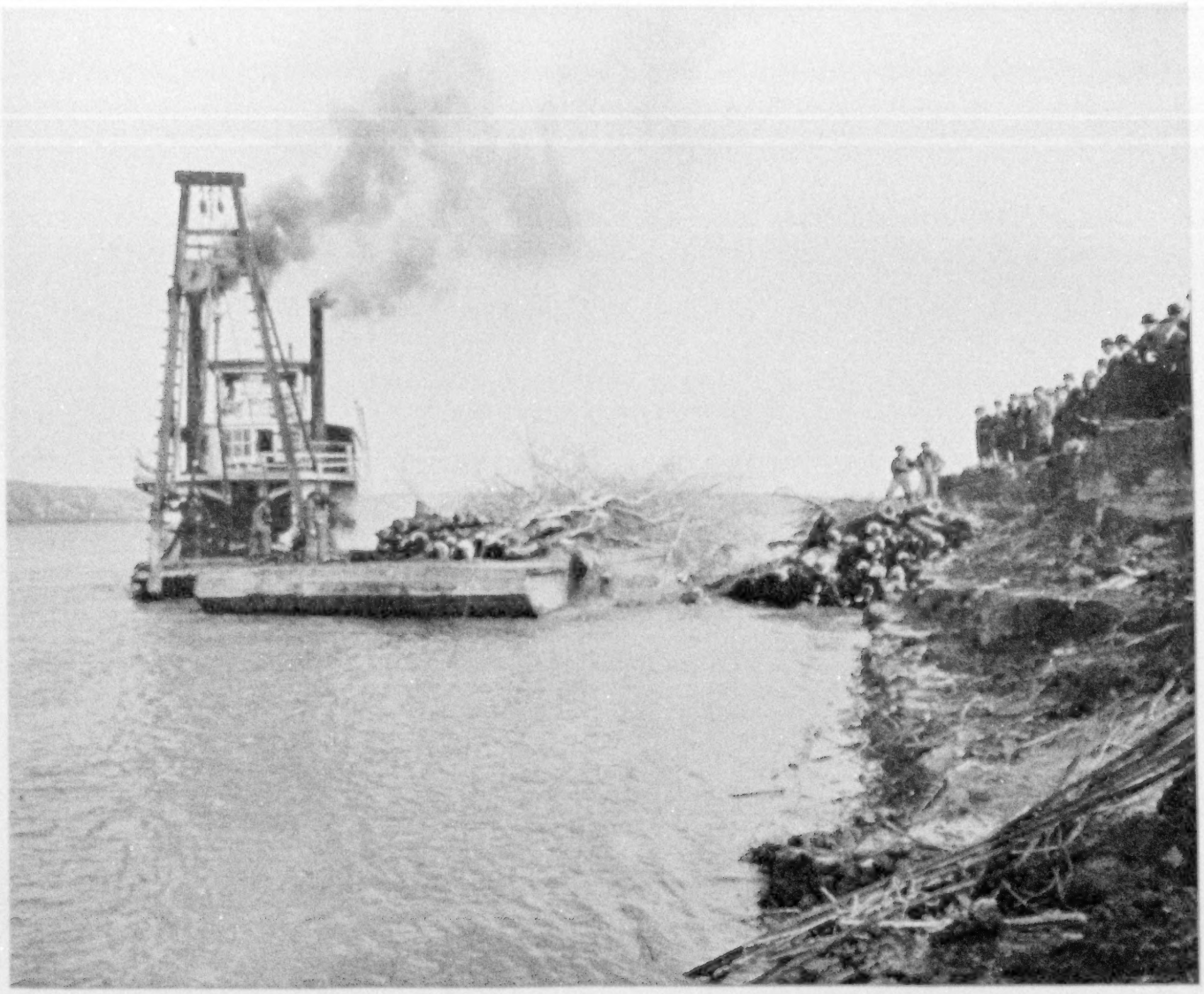
One could describe a single reach of the first 800 miles of the Missouri below the mouth of the Yellowstone and have a description that would fit almost every mile: a broad, shallow river, swinging back and forth in ever-changing channels in a wide, level bottom between bare, deeply eroded, yellow-brown Dakota bluffs. The level, channel-torn bottom continues all the way to the Mississippi; but wooded hillsides and white limestone cliffs replace the brown bluffs after Nebraska and Iowa are touched.

Records of the return journey of Lewis and Clark often mention the remarkable changes occurring at various points on the Missouri's shifting channels since they had passed upstream. This cutting of banks goes on at some points practically all of the year; it is going on before one's eyes as he voyages down the river, and so rapidly at times that care has to be taken not to spread a bed too close to a caving bank.

THE OLD MUDDY GIVES AND TAKES

"The Old Muddy gives," said a Bismarck old-timer. "It also takes; it takes a cornfield and leaves a sandbar. If it leaves the bar long enough, soil gathers and you can raise corn on it; but about that time the Muddy will start another moving party and leave you nothing but a hole in the ground, passing the bar downstream to your neighbor."

I made camp next on a hard, smooth



Photograph by Louis R. Bostwick

TO SAVE THEIR LAND, MEN FIGHT THE CAVING RIVER DAY AND NIGHT

When the shifting current sets against a bank of soft, soaked soil, it cuts faster than a steam shovel. One means to check this is to build a "retard" of poles and brush, sometimes held in place by rocks or piles driven in the river's muddy bottom.

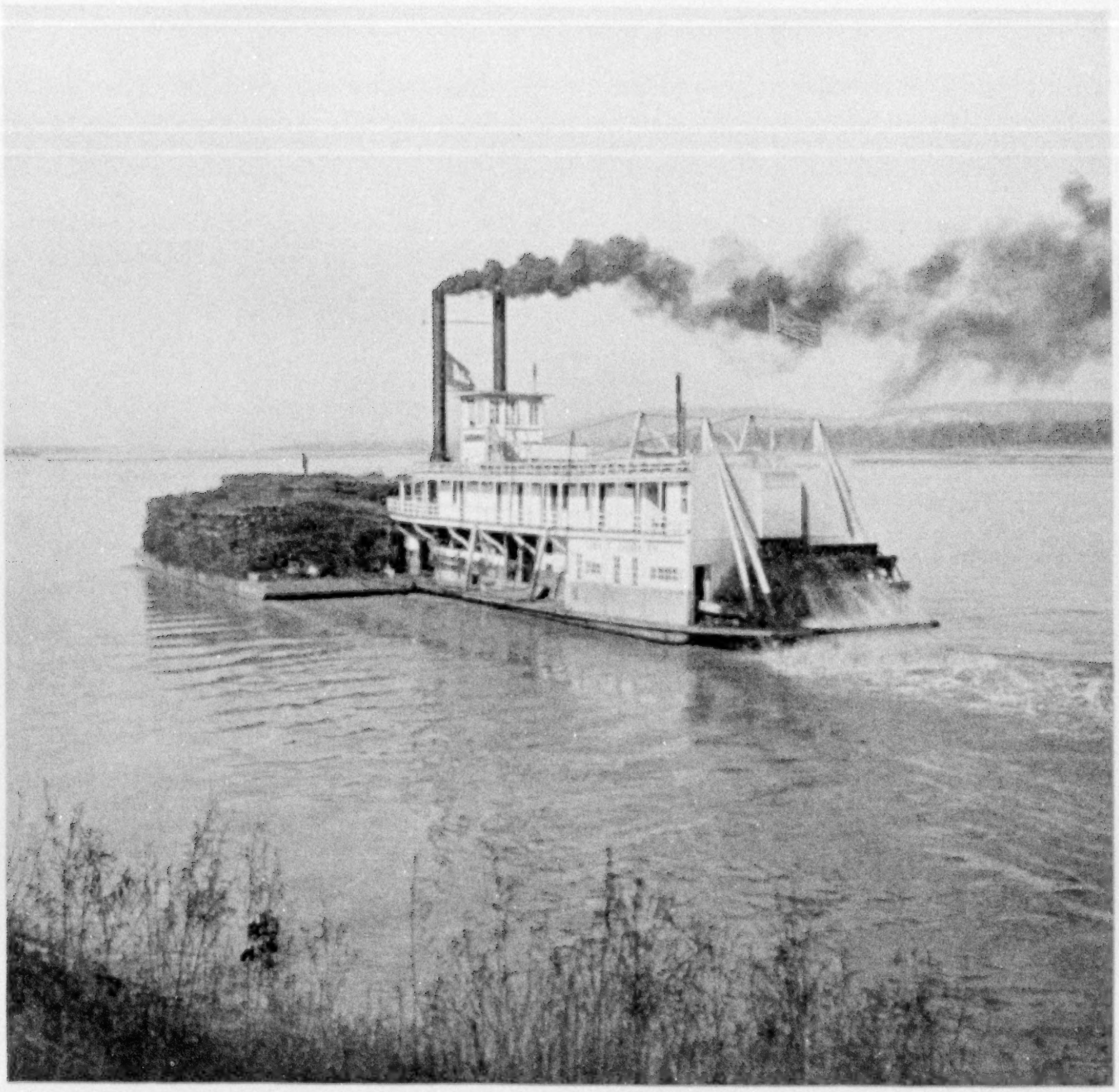
sandbar near the middle of the river. No mosquitoes there, I felt sure. A century and a half previously, right about here, Clark had felt the same way about another clean, hard sandbar camp. But in his journal he spells the word mosquito three ways—all wrong! This is condensed from the Biddle version:

SKIRTING THE "MOSQUITO COAST" OF THE MISSOURI

When the camp at the mouth of the Yellowstone "became absolutely uninhabitable in consequence of the multitude of mosquetoes . . . Captain Clark determined to go on to some spot which should be free from musquitoes, and furnish more game. . . . He proceeded down the river to the second point and encamped on a sandbar; but here the musquetoes seemed to be even more numerous than above. The face of the Indian child is considerably puffed up and swollen with the bites of these animals, nor could the men procure scarcely any sleep during the night, and they continued to harass them the next morning."

When Clark climbed a hill next day to shoot a bighorn the "musquetoes were in such multitudes that he could not keep them from the barrel of his rifle long enough to take aim." I took no rifle-sighting test, but after many mosquitoes had fallen into my frying-pan, I gave up the breakfast idea.

Along here the river banks are a veritable "Mosquito Coast." Cattle nose-deep in water or rushing blindly through thorny bullberry bushes, smudge barriers around the scattered ranchhouses, dark shifting clouds over marshes and overflow lakes—every one of them was a sign of an ancient



Photograph courtesy U. S. Army Engineers

THIS TYPE OF STERN-WHEEL STEAMER, DEVELOPED ON THE MISSOURI AND MISSISSIPPI, HAS SPREAD TO RIVERS AS FAR AWAY AS THE TIGRIS AND MAGDALENA

Flat-bottomed and of light draft, such boats are well adapted to shallow streams, where mud banks and sandbars come and go, as currents shift. This Missouri River craft, operated by U. S. Army engineers, is pushing bargeloads of poles and brush for making mats used in shore-protection work (see page 108).

enemy. Miles and Terry and Crook drove the Redskin from the Yellowstone and Missouri, civilization exterminated the buffalo, but the mosquito still ranges unchecked over his ancient domain.

At Williston I passed the pumping works of one of the few irrigation projects on the Missouri. On account of its nature and habits, gravity diversion on any extensive scale is practicable at no point on the Missouri below the Yellowstone. It is done at Williston by pumping from barges which rise and fall with the river level; but costs are too high to water any big acreage.

The second night after leaving the Yellowstone I made camp near the mouth of Shell Creek, 152 miles from Bismarck. Driven to the river by mosquitoes an hour before daylight, I "put to sea." Both breakfast and lunch I ate in the boat and kept going till dark.

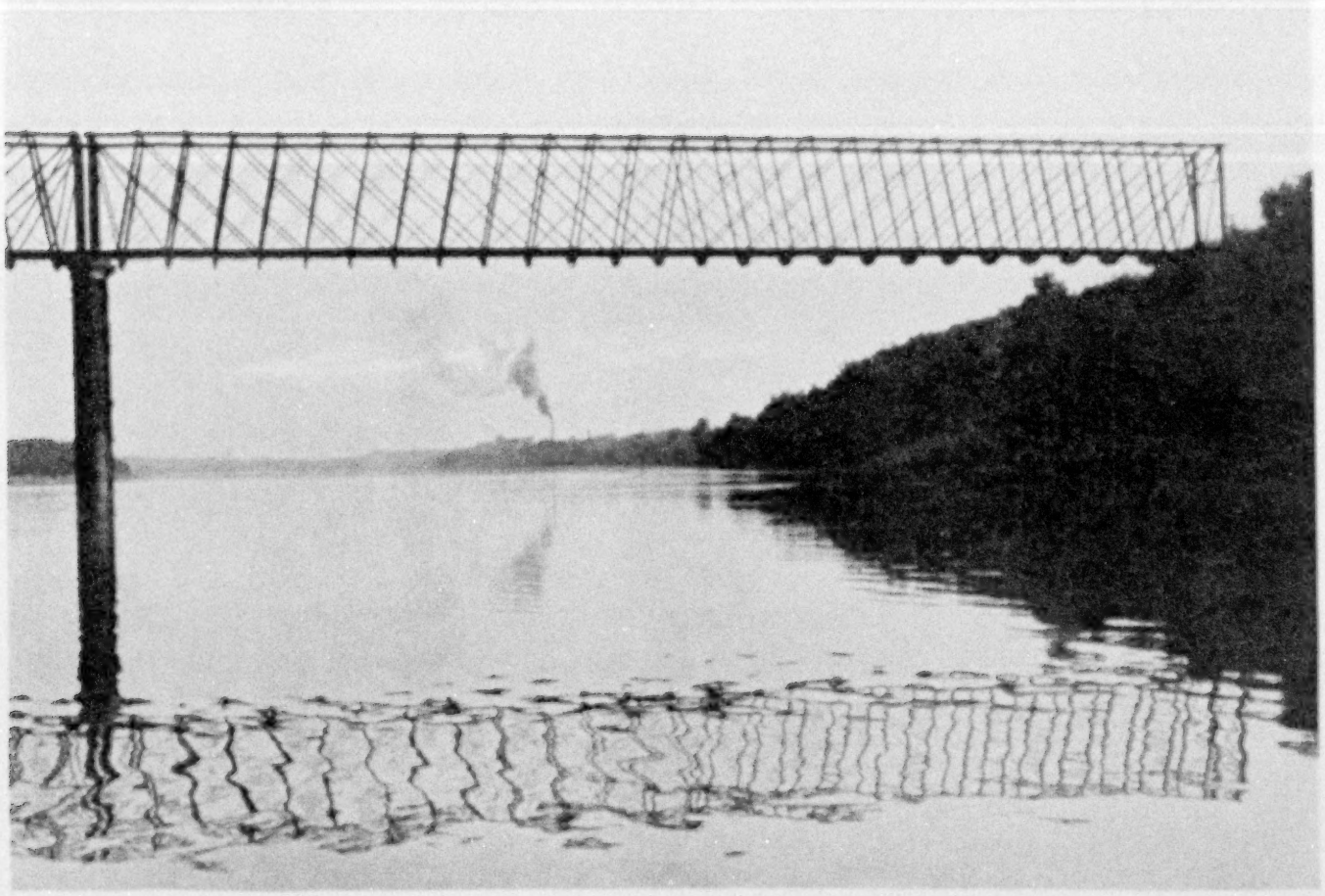
QUICKSANDS SUCK CATTLE DOWN

Early next day I passed the mouth of the Little Missouri. Later the historic, but long abandoned, site of old Fort Berthold slipped by. For miles along this stretch I saw thousands of range cattle in the water, seeking shelter from flies

Photograph by W. I. Brown

A STRANGE GROWTH OF ELM IN ANDREW COUNTY, MISSOURI

These trees are 25 feet apart, but when one fell it landed squarely in the fork of the other and they grew together. Each trunk is 20 inches in diameter and the standing tree is about 75 feet tall.



Photograph by Lewis R. Freeman

"WHAT RIVER IS THIS?" MEN IDLY ASK NOW, AS TRAINS CARRY THEM OVER THE ONCE BUSY MISSOURI

Forgotten by most moderns is the fact that once the Big Muddy was man's main highway from St. Louis to the Northwest. On its yellow bosom rode the hunter horde, the fur trader and Indian-fighting soldier, to conquer the plains. A railway bridge at Leavenworth, Kansas.

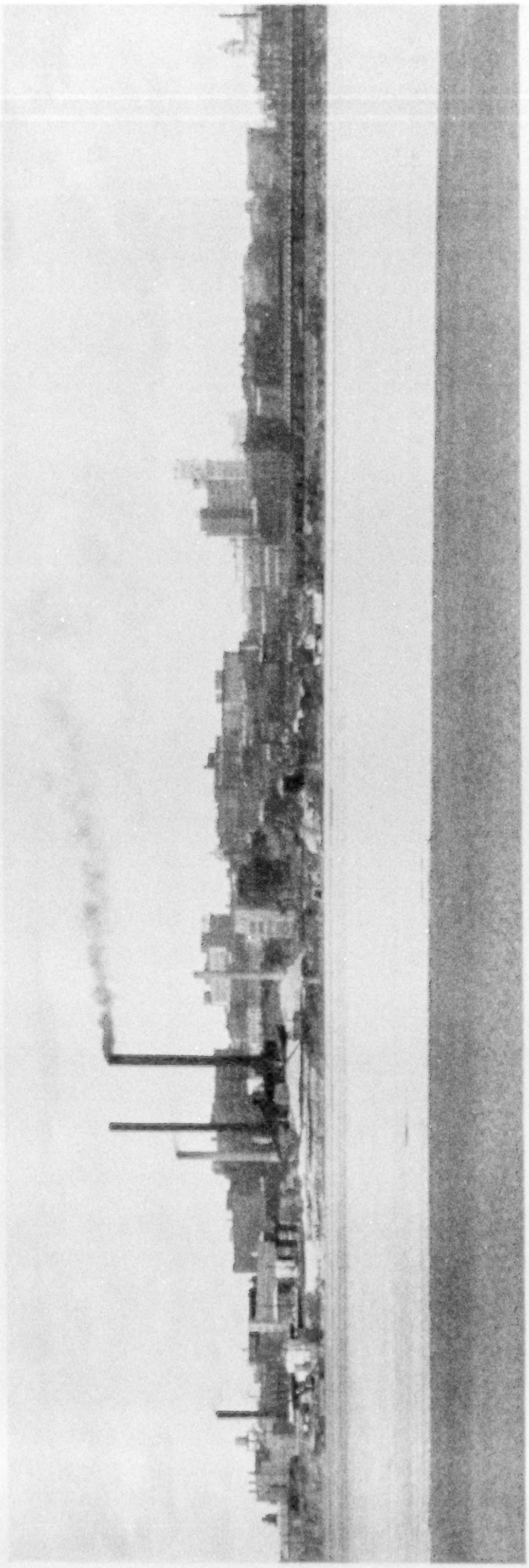
and mosquitoes. Many animals, in their desperation, had ventured into quicksands and were being slowly sucked out of sight. Two Indians from the Agency at Elbowoods, working with ropes and saddle horses, were dragging out an occasional steer where dozens were sinking beyond all help.

A town named "Expansion" on the map might better have been called "Contraction." It was all but gone. I was still rowing steadily when the red sun sank over low flats at the mouth of the Knife, a favorite halting place for both up-and-down-river parties in olden days. Threading in twilight the sprawling channels where the river ran down toward a long easterly bend, I landed in the dark against a wet bank. Undermined willows and cottonwoods made further navigation impossible. Floundering in vain for half an hour to reach the lights of buildings I saw on higher ground, I went back to my boat and spread my bed in the bottom of it.

Dawn, striking a sign on a towering grain elevator, showed me that the little group of buildings whose lights I had seen was Fort Clark. I had spent the night very near the point where Lewis and Clark had wintered in 1804-5. I knew better than to look for traces of that historic post. Even in the 1806 journal of the explorers it is told that "on reaching Fort Mandan we found a few pickets standing on the river side, but all the houses except one had been burnt by an accidental fire."

COLTER, MOUNTAIN TRAPPER, DISCOVERED YELLOWSTONE PARK

The returning Lewis and Clark parties had made only a short halt in 1806 at Fort Mandan; but it was long enough to allow the restless spirit of John Colter to fall again under the sway of the "Mountain Land." Here he turned back to join a couple of trappers for the Rockies. More than a year later he passed through an amazing region of geysers, hot springs, waterfalls, and colored rock and became the discoverer of what we know to-day as



THE WATER FRONT OF ST. JOSEPH, MISSOURI

"Saint Jo," as this city is familiarly known, was the starting point of the famous pony express that carried mail across the plains in spite of red warriors and white bandits. A little more than a century ago Joseph Robidoux established a trading post at this point and thereby perpetuated his name in that of the city which later developed (see, also, text, page 119).

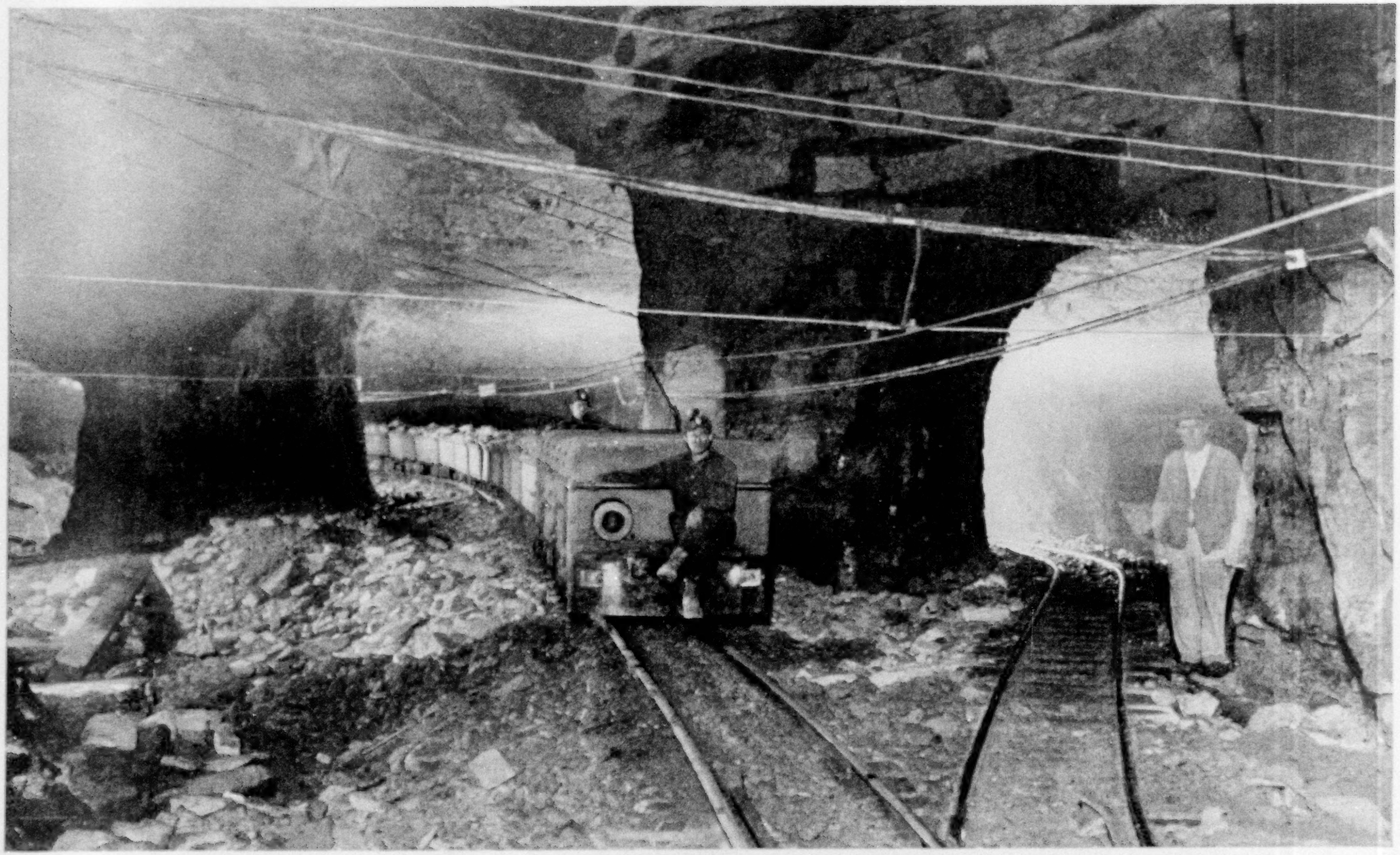
Yellowstone National Park. It was not until this wonderland was scientifically explored, more than half a century later, that the marvelous tales told by Colter—subsequently magnified by rare Jim Bridger—were found to be substantially true (see, also, text, page 88).

Mid-afternoon of another day found me pulling under the Northern Pacific bridge at Bismarck. It was the advance of the railway from this point, through lands Uncle Sam had promised to Indians, that started that great struggle with the Sioux which, beginning a few months previous to the Custer massacre, continued till the last of Sitting Bull's forces had come back from Canada and surrendered. The railway span at Bismarck is almost directly over an ancient Indian and buffalo ford described by many early voyagers.

AT THE GRAVE OF SITTING BULL

The run of 80 miles from Bismarck to the Standing Rock Indian Reservation at Fort Yates was easily made between noon and sunset. I made one stop at the site of old Fort Abraham Lincoln, just below the Heart River, whence Custer marched to the Battle of the Little Horn in 1876, and to which the surviving wounded of Reno's command were later brought on the epic run of the *Far West* (see, also, text, page 88). Passing the mouth of the Cannonball, I saw many round sandstone globes. They gave the river its original name of Le Boulet (p. 91).

The agent at Standing



Photograph by Thompson's Studio

IN A MISSOURI LEAD MINE

The ore is speeding away to the outside world, where it will be made into water pipes, movable type for printing, sinkers for catching big fish, and weights of various kinds. Missouri is the principal lead-producing State of the Union.

Photograph by Rehmeier Studio

FROM THIS POINT OX TEAMS FIRST SET OUT IN THE OVERLAND TRADE WITH SANTA FE

The first steamer up the Missouri landed here. In Old Franklin, at the far end of this, the Boonville Bridge, was printed the *Intelligencer*, first newspaper west of St. Louis. Here Kit Carson, apprenticed to a saddler, ran away to join the Santa Fe traders and become leader of his "mountain men." Here was a beaver market and the outfitting center for trappers and keel-boat men trading with the upper river. Then high water ruined Franklin (see, also, page 120).

Rock put a mosquito-proofed room at my disposal for the night and took me out to Sitting Bull's grave the next morning. A plain headstone records that the famous chief was killed December 15, 1890, but it does not add that it was by Indian police sent to arrest him for inciting the Ghost dancers of the "Messiah" movement, that had thrown the Sioux into a state of dangerous unrest and threatened another war. Of no such military ability as Gall, Crazy Horse, Joseph, or Geronimo, there is still no doubt that this sullen, staunch-hearted medicine man was the rallying spirit of one of the bravest and greatest stands the American Indian ever made against the encroachments of the whites (see page 88).

At Mobridge, just over the South Dakota line, reached in a short half day's run from Fort Yates, I touched a point of great historic interest. The Grand flows in from the west just above here, and at its mouth were located the villages of the Arikara. Friendly to Lewis and Clark on both the going and return journeys, they later became hostile to the whites.

When the Astor party came to the Grand a few years later, it was met by a demand from the Arikara (also called Ricarees or Rees) that unless one boat was left to trade with the villages the way would be blocked. Hunt, the leader of the Astorians, compromised by buying horses from the Indians. He then started west up the Grand, but reached the Columbia only after enduring almost unspeakable hardships.

In 1823 Gen. William Ashley, embarking on operations which were to make him famous as a fur trader and explorer, was ambushed by the Arikara at the Grand. His party of a hundred or more, badly beaten, was robbed of most of its horses. Ashley's expedition at this time contained trappers and hunters known as "the most significant group of continental explorers ever brought together." Jedediah Smith and old Hugh Glass, both immortalized by Neihardt, were

included in that historic band.

A campaign against the Arikara by a force under Colonel Leavenworth was turned into a military fiasco, partly through the failure of Sioux allies. This enabled the warlike tribes to make a toll-gate of the Missouri, at the Grand, for many years longer.

From the Grand on down, every bend and every bluff was peopled with memories of the men who had blazed the way. Every ledge and point beyond reach of the claws of the river, I knew had been looked upon and probably camped upon by earlier explorers. Time after time, running close under a cut bank to keep in deep water and current, I was splashed by the same sort of sudden cave-ins that had trapped many an unwary voyager. Night after night I shifted my bed backward from the encroaching river, just as the pioneers had done.

Photograph by Lewis R. Freeman

BELOW BOONVILLE THE AUTHOR MOORED HIS SKIFF NEAR A HOUSE BLOWN INTO THE RIVER BY A CYCLONE

THE SHALLOP SURPRISES A HERD OF BUFFALO

All through the Dakotas there was little to suggest change. Towns were small and far between. They had turned their backs on the river, as the railway strangled steamer traffic. Some of the old towns had been wiped out by the river; others had been left a mile or two inland by a wide shift of channel. Yankton reared the same bold skyline from its bluff brink that had beckoned old stern-wheeler captains for many years, but the flats below were altered beyond all recognition. The river end of Pierre had decayed somewhat, but through overarching cottonwoods I had a striking view of the State capitol on the slopes above.

The Lewis and Clark record tells of how returning men, at sight of the first herd of cattle, "raised a shout of joy at seeing this image of civilization and domestic life." Bison in thousands had blocked their way, but it was homely old barnyard "bossy" who awakened the memories! In my own case it was quite the reverse. A herd of cattle, range or domestic, was the one thing I was never long out of sight of while descending the Missouri; but drifting down on a bunch of range buffalo drinking at the river brink in the morning mist brought the greatest thrill of my voyage. Snorting,

ONE OF MISSOURI'S FINE FARM SECTIONS, WHERE THE GASCONADE ENTERS THE BIG MUDDY

Across the smaller stream (at the left) runs the bridge of the Missouri Pacific, a pioneer railway.

with heads and tails high in air, they bolted in terror over the low hills. Lewis and Clark and Ashley—no, not even the first wandering Sioux and Arikara—had ever found buffalo half so wild.

Many a winding reach below the Cheyenne recalled the account of how the Astorians, guns in hand, had raced the boats of the artful Manuel Lisa, whom they suspected of planning to stir up the Indians ahead. At the Great Bend of the Missouri I was sure I located the very camp site from which an energetic young voyager, after his party had toiled for three days to bring their mackinaws round the big loop, ran back a mile over a low ridge and retrieved the coonskin cap left at his last camp.

At a ranch 50 miles below Pierre I came onto the first scraggly apple trees, and at Yankton there were orchards and fields of corn. Wooded hills with running streams replaced bare bluffs beyond the foam-white mouth of the swift Niobrara. Now I was in a "fairer, greener land." Yankton's deeply shaded avenues were a delight after the sun-scorched streets of the towns above; so, too, was its beautiful outdoor Elizabethan theater, in which had just been produced a "Masque of the Missouri," celebrating the beginning of work on the new river bridge.

RIVER ROMANCE AND PROGRESS MINGLE AT SIOUX CITY

To busy and beautiful Sioux City, distributing center and home of packing-houses, I came next. From there on romance and modern progress were mingled all the way to St. Louis. One drives through the wholesale and factory district to reach Floyds Bluff, where stands the obelisk erected in 1900 over the remains of Sergt. Charles Floyd, only member of the Lewis and Clark party to die on the journey. Originally buried under a cedar post marked with Floyd's name, at the foot of the bluff, the encroachments of the river led to the bones being exhumed and finally transferred to an honored resting place under a pretentious and stately monument.

Fifty miles below Sioux City I passed another famous burial place, that of the great Omaha chief, Blackbird, who died a few years before Lewis and Clark came. He was buried, sitting on horseback, in a mound built at the summit of an eminence still called "Blackbird Hill." The Lewis-Clark party had the impression that the chief was a mighty warrior; but Brackenridge says his power was chiefly based on the secret use among his enemies of arsenic obtained from a trader.

The twin cities of Omaha and Council Bluffs long ago engulfed the historic posts which made both sides of the river here favorite halting places for voyagers. The original bluff of the Lewis and Clark council with the Indians, however, was 20 miles above Omaha and on the same side of the river.

HISTORIC TRADING POSTS NOW INDUSTRIAL CENTERS

The present city of Council Bluffs maintains that it has more railway stations and grade crossings to the square mile than any other city in the world. Omaha, railway and packing center, is a splendidly built town. It takes second place in population and business only to Kansas City, among Missouri River industrial centers.

As orchards and cornfields crowded closer along the rich river bottoms, I saw still more signs of losses caused by the cutting action of the Missouri. Strips of land hundreds of feet in length frequently fell as I passed them. Places were pointed out where farms of many hundreds of acres had disappeared in a few seasons. The railways, at high cost and not always successfully, have done what they could to protect exposed sections of track by rip-rapping with rock and revetting; but not till I passed Omaha did I see any work which promised to save farms.

Much of old St. Joseph now lies out under the mid-channel of the Missouri; and the river still digs at the sloping hills to which the modern city has retreated (see page 114). Once the metropolis of the Missouri, St. Joseph has never quite forgiven Omaha and Kansas City for growing away from it. Up-to-date as the present city is, it is still rich in memories. A monument marks the starting place of the Pony Express to California. The house in which Jesse James was shot is now a private museum. The shaded bit of road of which Eugene Field sang, under the title of "In Lover's Lane, St. Jo," is still open to traffic; but the smell

of gasoline is strong where once Gene tooled his horse and buggy.

KANSAS CITY CLINGS PARTIALLY TO THE RIVER

Farms and villages and even cities crowded close along the 90-mile stretch between St. Joseph and Kansas City.* There was historic Leavenworth. An overnight stop revealed that it has shrunk in size, in spite of a beautiful location, a rich back country, and the business that must come from prisons, a military post, and a soldiers' home.

Bustling, virile, progressive Kansas City, although one of the greatest rail centers in the country, has tried hard not to turn entirely from the river that served it so well in its early days. It has built a municipal dock and induced the Government to chart and prepare for the installation of lights on the channels leading down to the Mississippi. Unfortunately, that is about as far as the reopening of navigation of the lower Missouri has gone up to the present; but if Kansas City has its way, as it usually does, it should not be long until steamers are moving again over at least the first section of this capricious but potentially important waterway.

Jefferson City is the only important town on the Missouri that has endeavored to make the river its front door. The magnificent State capitol building, one of the finest in America, has been built at the brink of a hill sloping directly down to the river, with all of the intervening ground ultimately to be parked. The splendid dome rears its head above bend after bend, as one approaches the city by river from above or below.

The lower 200 miles of the Missouri, where it winds past lofty white limestone cliffs, form one of the most beautiful stretches on any river in America, not excepting the Columbia and Hudson. My enjoyment of this panorama was marred by a violent two-day storm which descended upon the lower valley just as I was pushing on from Boonville. Torrential downpours brought a rise in the river. I camped at dark near where the aged Daniel Boone—his eager spirit willing but the flesh too weak—leaned on his rifle and watched the boats of the Astorians go west on the trail he could no longer follow (see page 116).

SUDDEN FLOOD SWAMPS ISLAND CAMP

After running all day in rain, I camped on an island below old St. Charles. Shortly after I had turned in, a terrific onslaught of wind and rain beat flat my tent. Entangled in wreckage, I was unable to reach my boat in time to prevent its swamping against the steep bank along which it had been moored. Finally freeing it from water and mud, I began dragging it back through the willows to the crest of the islands, only to be met with the swirling wash driven over from the opposite side.

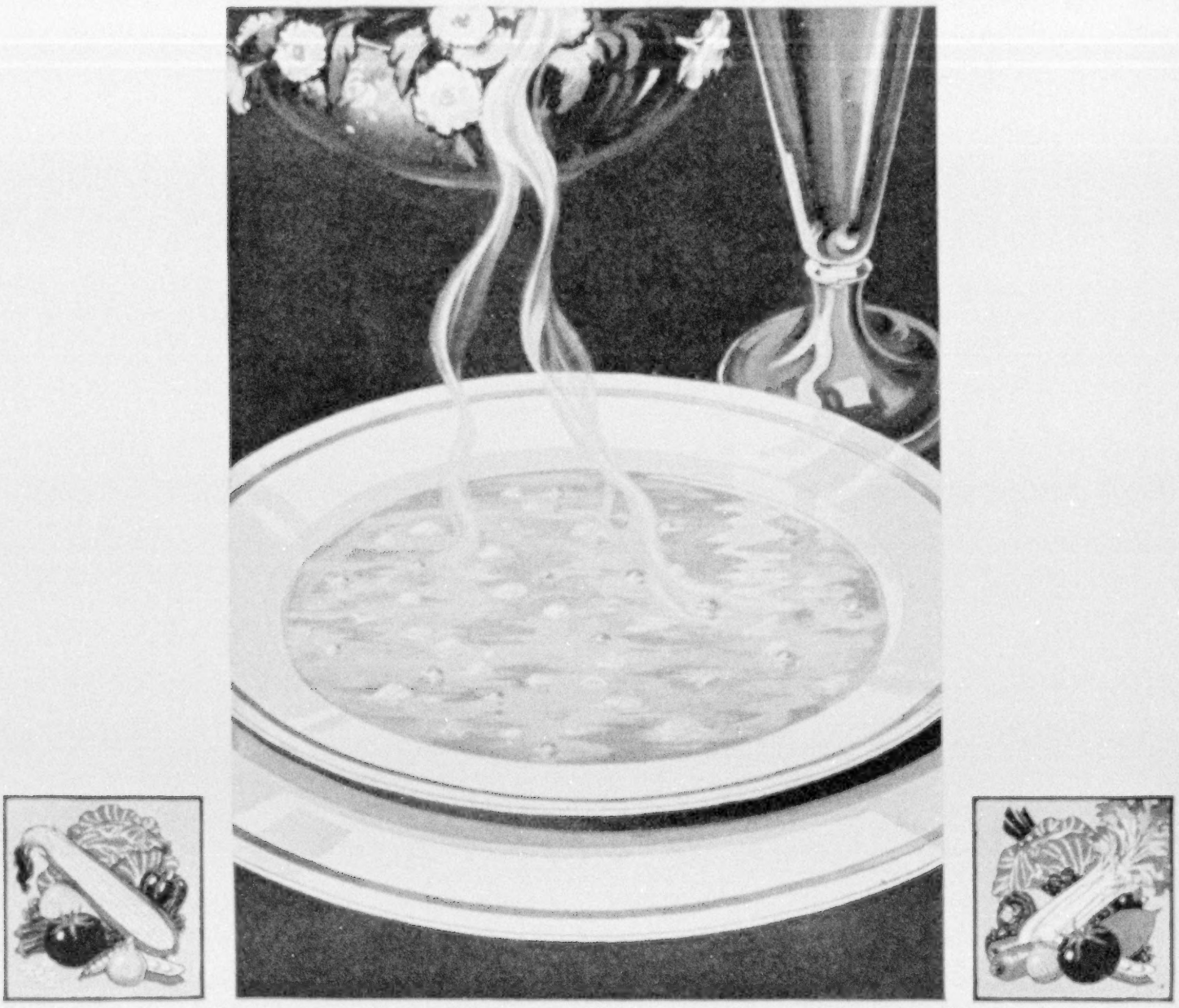
I learned later in St. Louis that the rise, one of the most sudden in many seasons, was occasioned by peak floods from the Osage and Gasconade pouring upon an already flooded Missouri. My island, which had been five feet above river level when I made camp, was completely covered before midnight. At 3 o'clock, after standing for a couple of hours in water that was flowing fast enough to undermine footing, I untied my boat and pushed off into a flood which appeared to be composed of about equal parts of water and driftwood.

At daybreak I pulled down to the junction of the "Father of Waters" and the Big Muddy. Rounding a point where a farmer and his wife stood shivering, as they watched the river gulp their corn field in great 100-foot bites, I saw ahead a dark line of woods which seemed to block the channel. I knew it, however, as the east bank of the Mississippi, the spot from which long ago Lewis and Clark set out for the Pacific.

Here, where tawny waters of the Big Muddy polluted the clear green of the Mississippi—here was my journey's end. In my tiny skiff I had covered 2,000 miles.

* See, also, "Missouri, Mother of the West," by Frederick Simpich, in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1923.

HOT, INVIGORATING VEGETABLE SOUP!



You need it with all the cold foods

In summer especially, good hot soup is beneficial. The appetite is grateful for it. It promotes and stimulates the digestion, taxed with assimilating so many cold foods.

* * *

The summer meal should include one hot dish. For this, soup is ideal, because it combines tempting flavor and healthful nourishment with wholesome, tonic invigoration.

LOOK FOR THE
RED-AND-WHITE LABEL

Fifteen different vegetables in Campbell's Vegetable Soup! Laden with nature's own valuable nutrients. You simply add an equal quantity of water, bring to a boil and simmer a few minutes.

* * *

Your grocer has, or will get for you, any of the 21 Campbell's Soups listed on every label. A delicious soup for every occasion. 12 cents a can.

WITH THE MEAL OR AS A MEAL SOUP BELONGS IN THE DAILY DIET

Telephone service, a public trust

An Advertisement of the
American Telephone and Telegraph Company

THE widespread ownership of the Bell Telephone System places an obligation on its management to guard the savings of its hundreds of thousands of stockholders.

Its responsibility for so large a part of the country's telephone service imposes an obligation that the service shall always be adequate, dependable and satisfactory to the user.

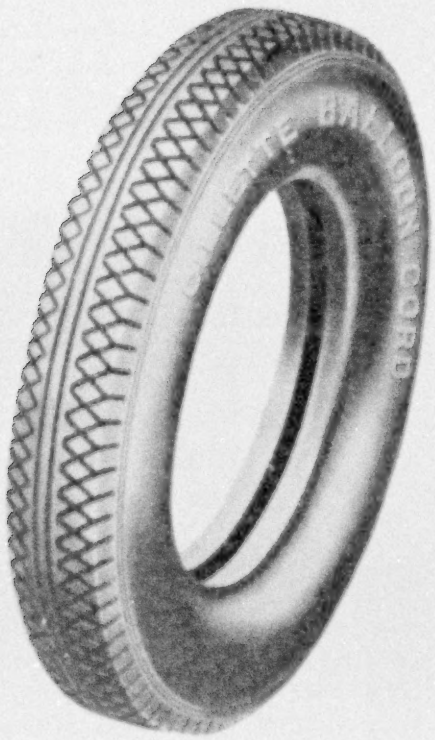
The only sound policy that will meet these obligations is to continue to furnish the best possible service at the lowest cost consistent with financial safety.

There is then in the Bell System no incentive to earn speculative or large profits. Earnings must be sufficient to assure the best possible service and the financial integrity of the business. Anything in excess of these requirements goes toward extending the service or keeping down the rates.

This is fundamental in the policy of the company.

The Bell System's ideal is the same as that of the public it serves—the most telephone service and the best, at the least cost to the user. It accepts its responsibility for a nation-wide telephone service as a public trust.

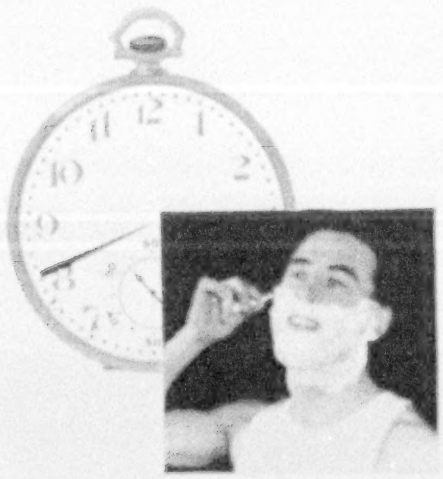
Gillette
TIRES AND TUBES



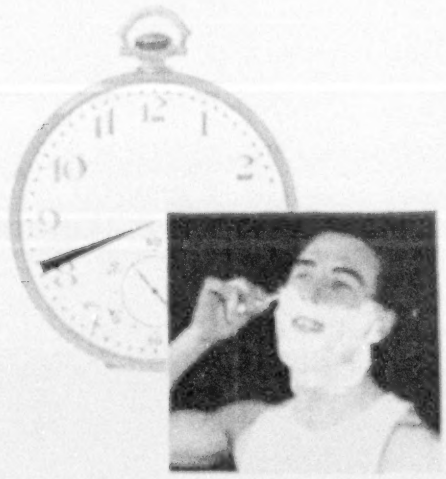
Popularity
through
Pioneering

THE outstanding popularity of Gillette Tires and Tubes is the reward for Gillette pioneering in the field of fine tire manufacture. Gillette pioneered and perfected the original water-cure process. This is the development that has so revolutionized the industry. Through this process and others Gillette has achieved a perfection in tires and tubes unexcelled in vitality, stamina and endurance. Public recognition of this unusual quality has brought Gillette in very few years to a high place among the leaders in national popularity. You will find all the comfort, mileage and freedom from repairs that you want from tires, in generous measure, in every tire bearing the Gillette name. There is a service station near you.

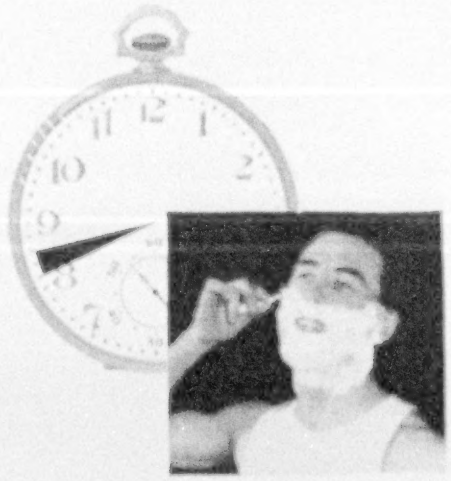
Gillette Rubber Company
Eau Claire, Wis.



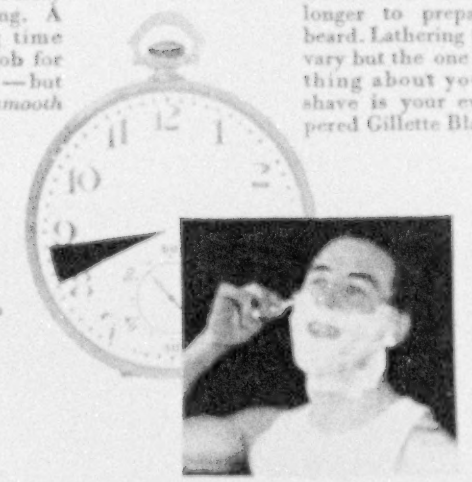
HALF A MINUTE. Whatever the reason for the morning rush, rely on the swift, even sureness of your Gillette Blade for the smoothest shave per second in the world.



ONE MINUTE. Just sixty seconds of lathering. A different lathering time means a different job for your Gillette Blade—but always the *same smooth comfort.*



TWO MINUTES. A bit longer to prepare your beard. Lathering time may vary but the one constant thing about your daily shave is your even-tempered Gillette Blade.



THREE MINUTES. Ideal for thorough softening of your beard. It may seem a bit luxurious to spend so much time lathering up, but you'll be repaid by the fullest measure of comfort that your Gillette Blade can give you.

You fast shavers—

here's the smoothest, surest shave per second in the world!

TIME affects the comfort of your shave, of course. Lots of men have to "race" it. Slow shaving is a luxury, which we can't always afford.

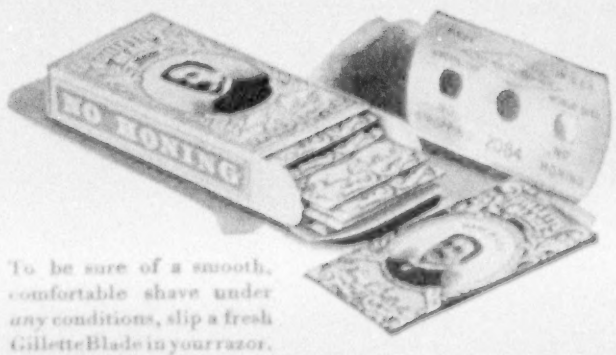
But the smooth, kind, thorough job that the Gillette Blade does on its easy path is something you can't afford to pass up—for it's the smoothest shave *per second* in the world.

Gillette hones and strops every blade on instruments so fine that variation of one ten-thousandth of an inch sends out a tell-tale signal. Gillette "coaxes" perfect shaves into every blade as no human hands could possibly hone and strop it. And nearly half of Gillette's people are special inspectors, paid double when they find a single blade that won't do a superb job of shaving.

It has cost twelve million dollars in the last ten years alone to keep this blade doing its job so uniformly and so *well* that eight out of ten men prefer it.

Gillette keeps faces smooth and comfortable; men of sixty look twenty years younger; young men are starting right, and staying young. No man ever gave the Gillette Blade the identical task two days in succession. Shaving conditions may change, but the blade meets every man's conditions.

GILLETTE SAFETY RAZOR CO., BOSTON, U. S. A.

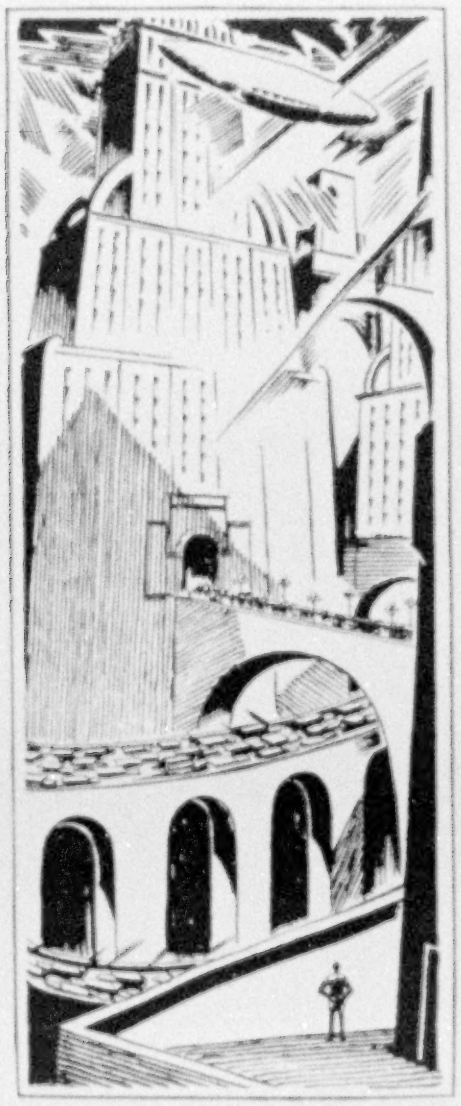


To be sure of a smooth, comfortable shave under *any* conditions, slip a fresh GilletteBlade in yourrazor.

Gillette

Gillette

"Chrysler can't do it"



IF THE WORLD excels in any one thing today, it is in the almost miraculous achievements of the mechanical or physical sciences.

It is not altogether safe to say of anything mechanical, in such a creative age as this, "It can't be done"—but it will continue to be said till the end of time.

People who have been doing things in a certain set way for a great many years do not like to be jolted out of that one set way; therefore, they always say, as they have said of Chrysler thousands of times in the past three years, "It can't be done."

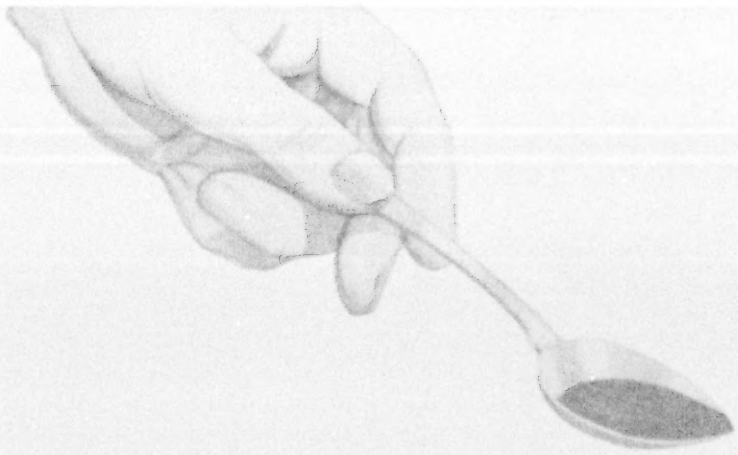
Chrysler has fired the imagination of the public and rushed up to its present eminence in the industry, precisely because people believe that Chrysler represents exactly the opposite spirit in engineering—which is the spirit of it-*can*-be-done.

This spirit of youth, and quickness, and daring in the Chrysler organization crystallizes and is given concrete expression in the appearance and the performance of every car which that organization designs and engineers and builds.

Doubtless you will hear the old petulant, pessimistic cry, "It can't be done" — every time progressive newness issues from Chrysler laboratories and plants — almost every time, indeed, that a Chrysler announcement appears.

But here is Chrysler, firmly lodged in the front rank of fine cars — here is Chrysler, backed by the most enthusiastic public a car has ever known — here is Chrysler, forming the style trend and the engineering trend for the whole blessed industry, from cars of lowest price to highest — and that would seem to be that!

CHRYSLER SALES CORPORATION
DETROIT, MICHIGAN



Less than a teaspoonful to the gallon

but what a difference ETHYL *makes!*

Ethyl Gasoline is colored red for identification but not all red gasolines contain ETHYL, whose active ingredient is tetraethyl lead. It takes more than dye to make an "anti-knock" (high compression) fuel.

ETHYL is the name of the "anti-knock" compound developed by General Motors Research Laboratories to make motor gasoline more efficient.

Leading oil companies mix it with their gasoline at their refineries to form *Ethyl Gasoline* — the standard high compression fuel.

There is less than a teaspoonful of ETHYL fluid in a gallon of Ethyl Gasoline — but what a difference it makes!

In cars of ordinary compression, ETHYL eliminates that "knock" and power loss as carbon forms — and turns the higher compression created by the carbon deposits into extra power. As for the new high compression cars, ETHYL made them possible!

Ethyl Gasoline is now available throughout the United States and Canada at pumps bearing the ETHYL emblem. Ride with ETHYL today.

ETHYL GASOLINE CORPORATION
25 Broadway, New York City
56 Church St., Toronto, Ont., Can.

ETHYL GASOLINE

Knocks out that "knock"

LEADING THE FIELD

IN QUALITY AT LOW PRICES

THE new Whippet Six, presented as the world's lowest priced Six, has a 7-bearing crankshaft, full force-feed lubrication, silent timing chain, invar-strut pistons, 4-wheel brakes and 109½-inch wheelbase.

The Whippet Four provides advanced features proved by millions of miles of owner use. Notable among these superiorities are full force-feed lubrication, silent timing chain, *big* 4-wheel brakes, unsurpassed economy, and remarkable speed and liveliness.

Whippet bodies are attractive, roomy and comfortable, with wide seats, exceptional leg room, and narrow corner posts for clear vision.

Willys-Overland, Inc., Toledo, Ohio. Willys-Overland Sales Co., Ltd., Toronto, Canada

Whippet FOURS SIXES

Whippet prices range from $455 to $610. Whippet Six prices $615 to $770. Prices f.o.b. Toledo factory and specifications subject to change without notice.

"The moving finger writes and having writ"~

money is yours

IN Persia, India and Japan; in London, Cairo, Rome or Montreal, indeed in ANY country or city in the world, YOUR signatures written on your American Express Travelers Cheques bring you money immediately.

No further identification is necessary. The reason is this. When you buy American Express Travelers Cheques, you sign each one at the time of purchase. They are not negotiable by anyone but yourself. When you spend one, you sign again in the presence of the person accepting it. This second signature, when exactly like the first, makes the cheque spendable. This is the reason why the American Express can reimburse you in case your Travelers Cheques are lost or stolen, uncountersigned or not exchanged for value.

So many millions of travelers have used these sky-blue travel funds since their introduction in 1891 that banks, hotels, restaurants, shops and garages the world over have come to expect the tender of American Express Travelers Cheques. Their sky-blue color is recognized everywhere.

Issued in denominations of $10, $20, $50 and $100—*Cost 75c for each $100*

Twenty-two thousand banks, American Express and American Railway Express offices sell American Express Travelers Cheques. Merely ask for them by name—

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Spendable everywhere

AMERICAN EXPRESS
Travelers Cheques

Steamship tickets, hotel reservations, itineraries, cruises and tours planned and booked to any part of the world by the American Express Travel Department

ALL AMERICAN EXPRESS CHEQUES ARE BLUE

Don't you hear the West a-calling?

Calling you who have been there before and you who have yet to sense its bewitching charm. The Union Pacific West calls you to a vacation that will live forever in your memory.

Geysers hurling columns of boiling spray hundreds of feet skyward, waterfalls with sheer drops of half a mile, mountains, thousands of them thrusting bediamonded peaks high above green forests. Canyons of bewildering grandeur, filled with gigantic architecture of stone painted with all the colors imaginable! Trees, forests-full of surpassingly big trees that were saplings 4,000 years ago.

Motor trails along the seashore, to the heights, to mountain lakes and streams, cool valleys, luxurious but inexpensive chalets far from smoke and hustle.

And don't forget the cities—they're different too. Denver, mile high Queen City of the Plains; Salt Lake City, capital of the Mormons; Portland, the Rose City; Seattle and Tacoma, on lovely Puget Sound; San Francisco, by the Golden Gate; Los Angeles, metropolis of the movies—each with its individual charm. You'll meet interesting people from all over the world.

Come out into the West this summer—the West of recreation, romance, adventure, mystery; and you will never be satisfied until you come again. And it's not expensive on a low cost independent or Escorted All-Expense Union Pacific tour.

Low Summer Fares via the Cool Summer Route to All the West

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Please send me complete information and booklet.

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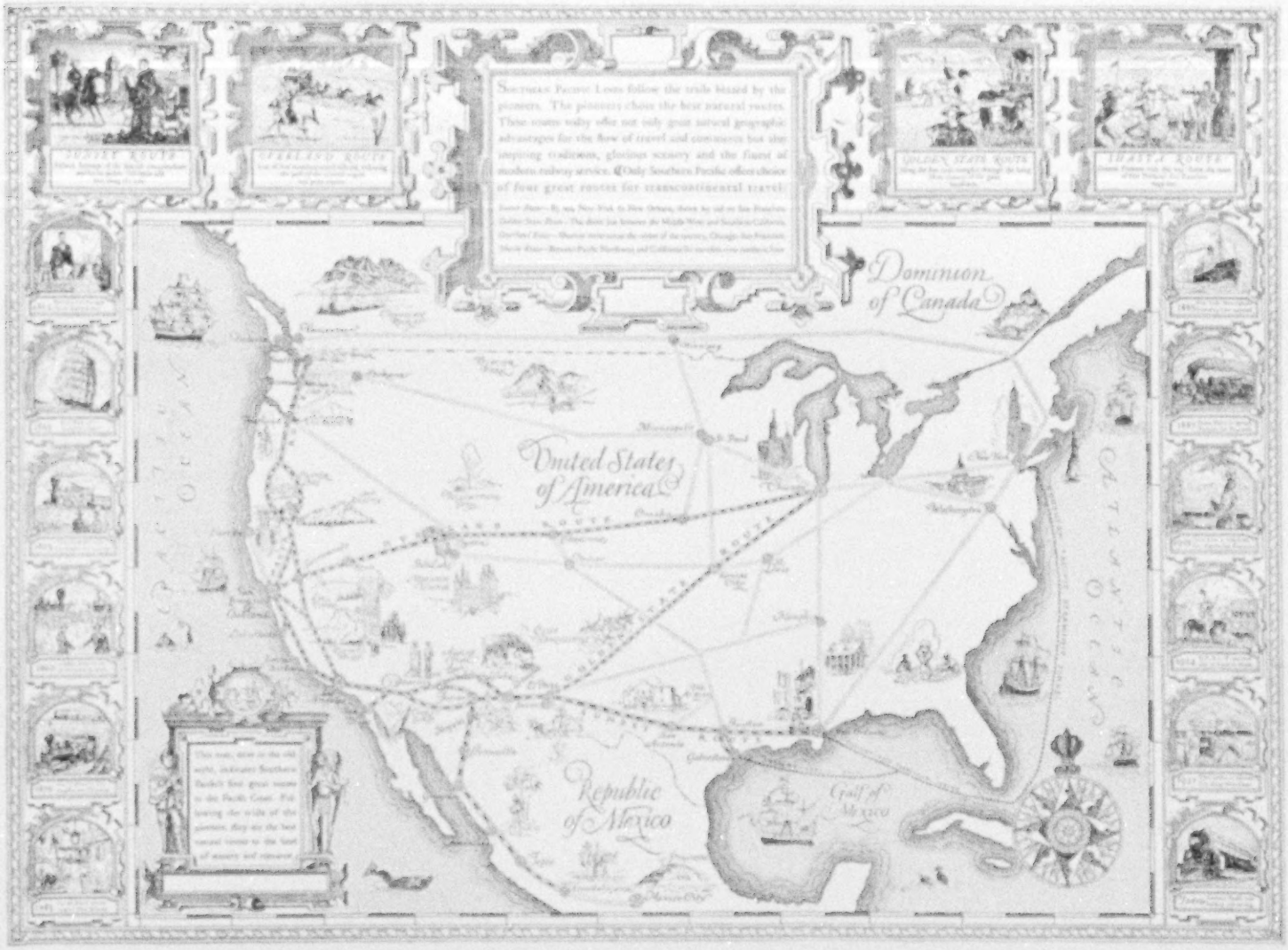
UNION PACIFIC

THE OVERLAND ROUTE



(THIS MAP IN COLORS FOR 25 CENTS. SEE BELOW)

Four Great Routes to California

Only Southern Pacific, the West's pioneer railroad, offers this choice. Go one way, return another. See the whole Pacific Coast.

The Pacific Coast! Once it beckoned to raw gold, raw land, rough opportunity. Now it beckons to Achievement.

To see this land is the right of every American. Such a tour is a joyous holiday as well,—a succession of gala hotels, memorable golf courses, cool ocean beaches, inspiring national parks. Summers are bracing, never uncomfortable, and practically rainless.

Southern Pacific is the only railroad system offering choice of four main routes, in addition to a network of scenic lines along the Pacific Coast. These are: SUNSET ROUTE, New York to New Orleans by steamship or rail, thence by rail to Los Angeles and San Francisco; GOLDEN STATE ROUTE, direct line, Chicago and Kansas City to Los Angeles; OVERLAND ROUTE *(Lake Tahoe Line)*, straight across the mid-continent from Chicago; and SHASTA ROUTE, Portland to San Francisco, for travelers by northern railroads.

Twelve fine trains operate daily. These include the premier "*Sunset Limited*", "*Golden State Limited*", "*San Francisco Overland Limited*", and "*The Cascade*".

Now! Low summer round-trip fares

Greatly reduced round-trip fares are now in effect. From Chicago to San Francisco and return, for example, is only $90.30. (Regular *one-way* fare is $79.84). For about $20 more your ticket will include Oregon and Washington also. Return limit October 31. Stop over anywhere.

Send for free folder; add 25 cents for large copy of this map

Write your name and address in the margin below, tear off, and mail to E. W. Clapp, traffic manager, Department C-7, Room 1022, 310 Michigan Boulevard, Chicago, for *free* illustrated booklet, "How Best to See the Pacific Coast". Antique picture map as shown above, 23 x 32 inches, in full colors on heavy parchment paper, will be mailed upon application to same address, for 25 cents in stamps.

Southern Pacific

Kaffee Hag

means coffee

"Healthful And Good"

. . . *coffee free of caffeine!*

EVERYBODY can enjoy coffee now . . . without the penalty of sleepless nights—without the payment of nerves. Gone is the drug from coffee. Caffeine.

Kaffee Hag Coffee is a blend of the world's finest coffees—97% free of caffeine. We remove the caffeine from the *green* coffee beans. By a secret process that affects nothing else. You can't taste the slightest difference.

All the fine coffee flavor remains. The quick bracing effects. These have never come from caffeine anyhow—but from aromatic oils and warmth. Caffeine stimulation doesn't even begin until two hours after drinking. There's no such thing as missing this tasteless, odorless drug at meal-time. But if you drink it, it may keep you awake hours later.

Kaffee Hag brings every pleasure the finest coffee can give. But none of the harm. How much better for everybody! How much more delightful is this rich, mellow, *real* coffee than cheerless coffee substitutes!

Most grocers carry Kellogg's★ Kaffee Hag. Ground or in the bean. Full-pound, air-tight cans. Ask for it at hotels, restaurants. On dining-cars.

We would like you to know how much it means when this pure, good coffee—without the drug—comes to your table. Mail the coupon below for a trial can.

KAFFEE HAG CORPORATION
1778 Davenport Ave., Cleveland, Ohio

Please send me, postpaid, enough Kaffee Hag to make ten cups of good coffee. I enclose ten cents (stamps or coin).

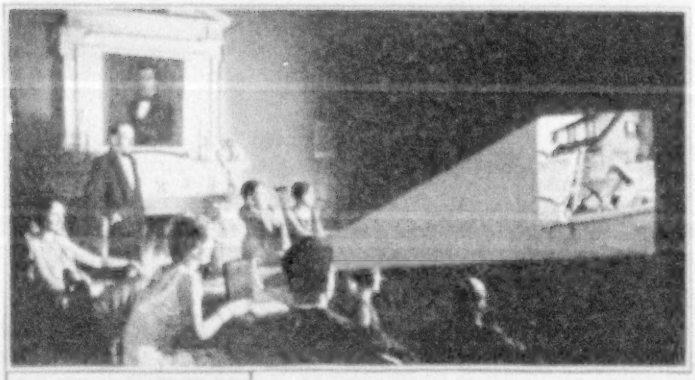
Name _____

Address _____

KAFFEE HAG COFFEE

★ Now a Kellogg product

Not a substitute — but REAL COFFEE — *minus caffeine*



Complete travel records for album or screen

Personal picture-taking in its most convenient form

Invaluable in scientific and technical fields

50 *pictures at one loading*

50 *pictures on the screen for $1*

FIFTY pictures *at one loading* is only one unique feature of the Ansco Memo Camera. Weighing only 12 oz., and 2 x 2½ x 4 in. *in size*, it can be carried anywhere. It loads in daylight—and the 50-picture film costs but 50 cents a roll.

Positive film prints, made from your 50-picture negatives, cost about $1—2c per picture! Thus Memo economy and convenience make screen projection popular—and more practical over a wider range of usefulness than has been possible before. See this camera at your dealer's; or send for free 48-page book.

The Ansco Memoscope

The Memoscope (shown in top illustration), uses not only positive film rolls from Ansco Memo negatives but also all other 35 mm. still films. It plugs in on any ordinary house circuit. You'll be pleased at its simplicity and performance, and surprised at the price—$19.50, including case.

ANSCO *Memo* CAMERA

$20 *Including Carrying Case*

Advanced Models $25 to $40

Prices slightly higher in Canada

Agfa Ansco Corporation, Binghamton, N. Y.

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Dull Film on Teeth

How It Fosters Serious Tooth and Gum Disorders

How film turns lovely white teeth dingy and "off color"

Now remove it as prescribed by modern dentists everywhere—a health as well as beauty measure

Send Coupon for 10-Day Tube Free

WHY dental science wants you to keep teeth dazzling white is a new and interesting chapter in modern health and beauty. Teeth, we are told, cannot be white or sparkling unless they are kept free from dingy film that forms each day. And film, it's proved by exhaustive scientific study, fosters serious tooth and gum disorders.

Thus teeth and gums to be healthy must be kept beautiful. Today, in accordance with leading dental practice, film is removed by a *special film-removing dentifrice*, called Pepsodent. It is made primarily for this purpose in answer to a crying need, because brushing alone fails to combat film successfully.

FILM—What it leads to

Film is that slippery, viscous coating on your teeth. You can feel it with the tongue.

It gets into crevices and clings so stubbornly that ordinary brushing fails to remove it successfully. Food discolors film and smoking stains it, thus teeth look dull and tarnished.

Film is the basis of tartar. It invites the acids of decay. Germs by the millions breed in it. And germs, with tartar, are an established cause of pyorrhea.

Old ways having failed, dental science evolved this new practice in tooth care—*a special film-removing method* known as Pepsodent.

The art of smiling charmingly is the art of caring properly for one's teeth, for upon teeth smiles depend

How new way removes film

Embodying, as it does, the most recent approved dental findings, Pepsodent acts to curdle and loosen film and then in gentle safety to the delicate enamel to remove it. This is the outstanding forward step in years of dental history.

Embodies other properties

Pepsodent acts to intensify the alkalinity of saliva and thus to neutralize the acids of decay caused by fermenting starch in food.

Pepsodent also aids to firm and harden gums to a healthy pink condition. Thus, in all protective measures, Pepsodent marks the utmost science knows in a modern dentifrice.

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Send for free tube to try. See how much whiter teeth will be ten days from now. Gums will be firmer—decay combated. This is the way most dentists urge. Your dentist, and Pepsodent used twice a day, offer you the best the world knows in tooth and gum care. Here health becomes synonymous with beauty.

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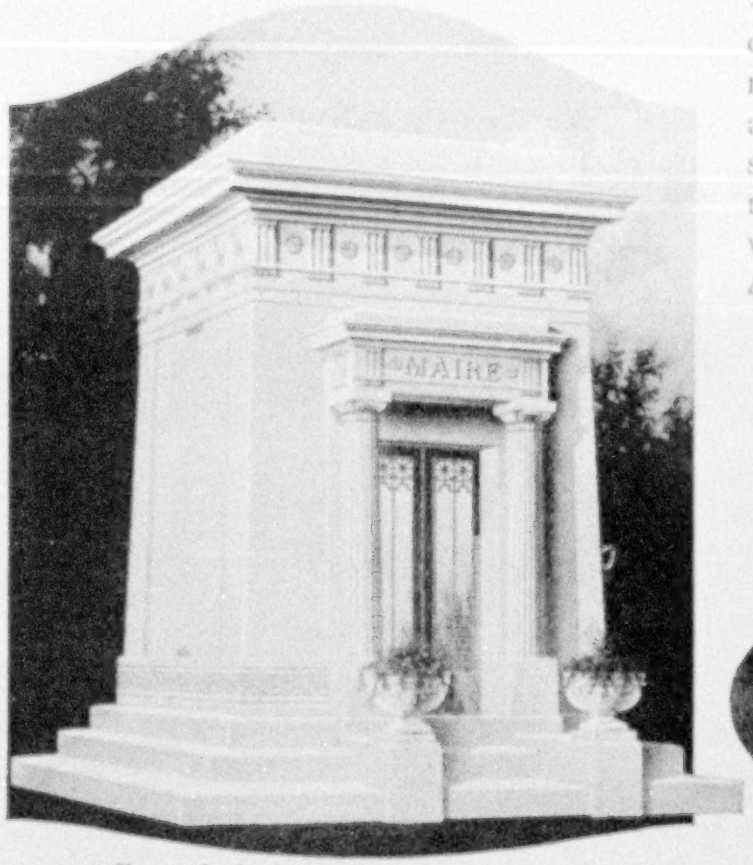
Canadian Office, **The Pepsodent Co.**
191 George St., Toronto 2, Ont., Can.

Only one tube to a family 2869

PEPSODENT

The Quality Dentifrice—Removes Film from Teeth

A Mausoleum of Monumental Type.
Build your Mausoleum while living.



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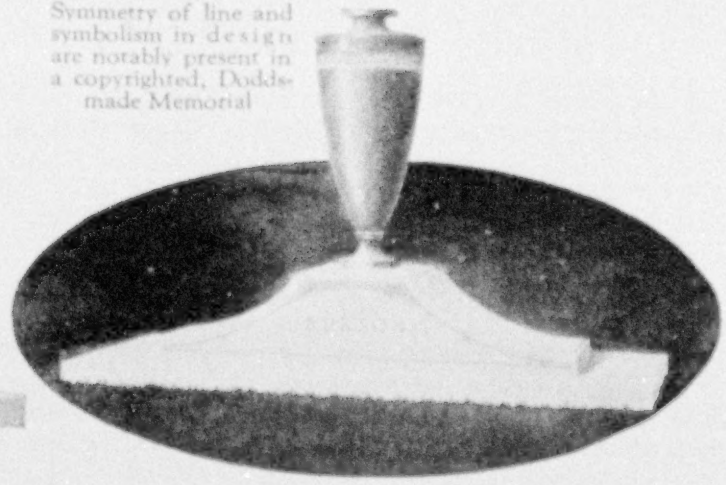

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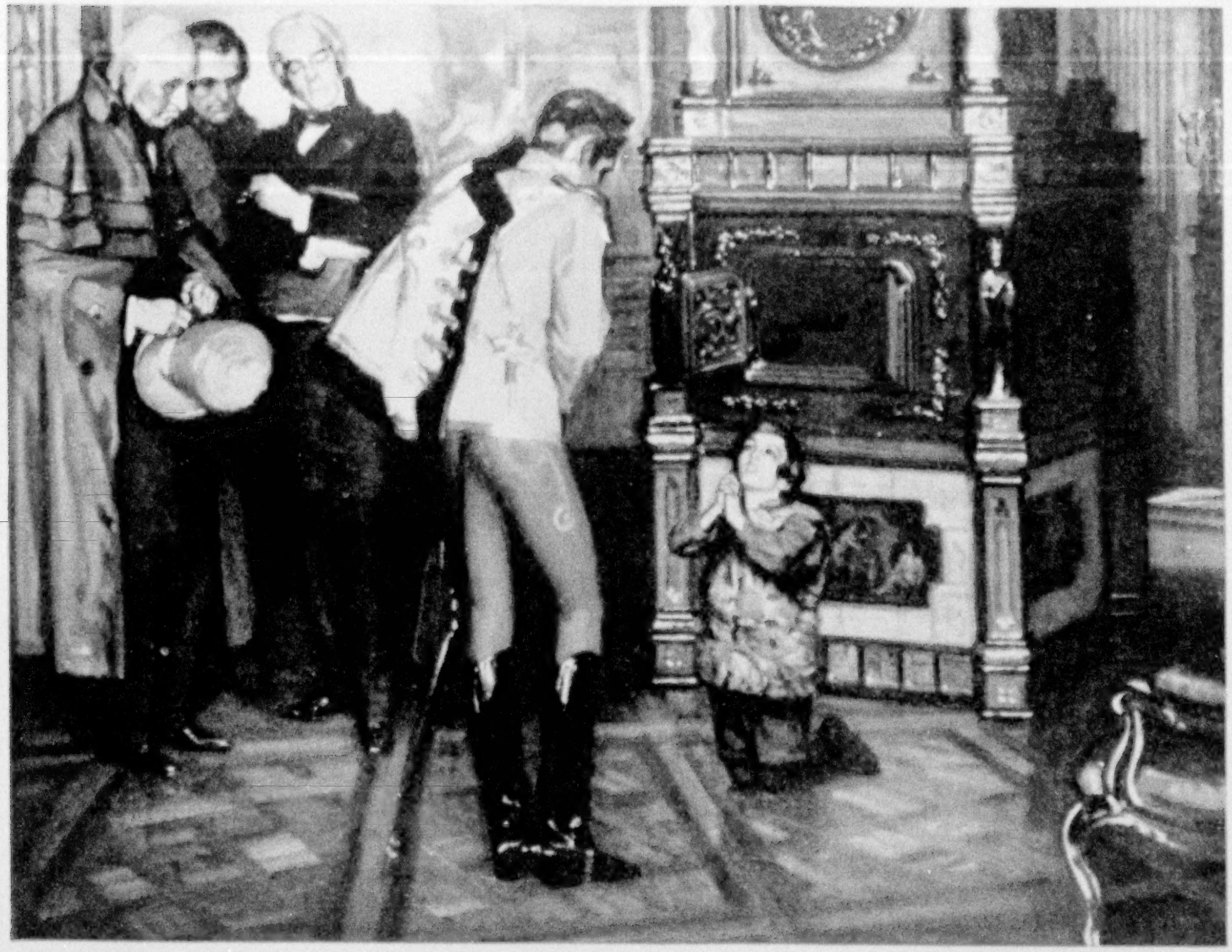
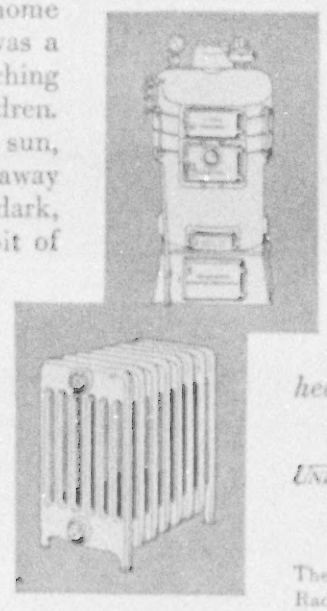


"Pray let me stay with the Nürnberg stove!"

TO little August in his humble home in Tyrol, the Nurnberg stove was a household god. So Ouida tells the touching story, beloved of generations of children.

Even greater and better than the sun, he thought it. For the sun goes away nobody knows where all the long, dark, cold hours. While just a little bit of wood, and the beautiful stove made summer all the winter through.



So utterly devoted to this giver of heat and health, this light of the hearth, was August that when his poverty-stricken father sold it, he hid inside it. Two days and a night he traveled. Finally, arrived at the royal castle of Berg, he sprang from its doors, pleading with the king who had bought it to be permitted to live near his great good friend, the Nurnberg stove.

The story of August may stand as symbolic of the vital part in daily living played by the modern heating plant. A friend of man, it diffuses not merely warmth, but comfort and health. And it does so never-failingly if it is a Capitol boiler. Such is the certainty of *Guaranteed Heating,** a written warranty of the exact number of radiators that any Capitol boiler will satisfactorily heat.

Thus, scientifically and with certitude, the Capitol contractor selects the boiler for your home. There is no danger that it will prove inadequate in days of sudden cold. No risk that it will be larger and costlier than your needs.

Thirty-eight years of heating experience and a nation-wide organization are back of Capitol boilers and their binding guarantee of economy. Ask your contractor, and write for a free copy of our illustrated book, "A Modern House Warming."

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SAY to your druggist: "Let me *try* Ingram's." He will give you seven *cool* shaves with our compliments...enough to test Ingram's for a week.

There is nothing else like Ingram's . . . The pioneer *cool* shaving cream. The instant it touches your face . . . you feel the difference. The difference is not a scent . . . it's a sensation. After the shave...you need no lotion. Ingram lather takescare of that. It has a clean, pleasant odor that men like.

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7 Free *COOL* Shaves Await You

Most of the million men who now use Ingram's every day tried it first—at our expense. Be sure before you buy. Let Ingram's prove itself on your own face. Just send the coupon and your 7 Free Shaves will go to you at once. Or, buy the full-size jar that will give you 120 *cool* shaves for 50 cents.

Ingram's Shaving Cream

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[for Amateurs only]

Use any make or size of camera. Enter pictures in one or all of the following classes: (1) Baby Pictures; (2) Rainy-day Pictures; (3) Fair-Weather Pictures; and (4) Unusual Pictures. You have nothing to do but to send in pictures ...no story to write...no problems to solve. Get contest particulars where you buy film—or direct from us...see convenient coupon below! AGFA ANSCO Corp., Binghamton, N.Y.

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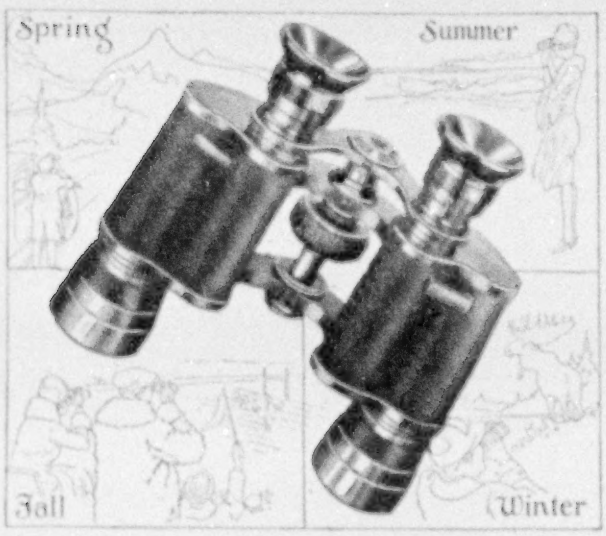

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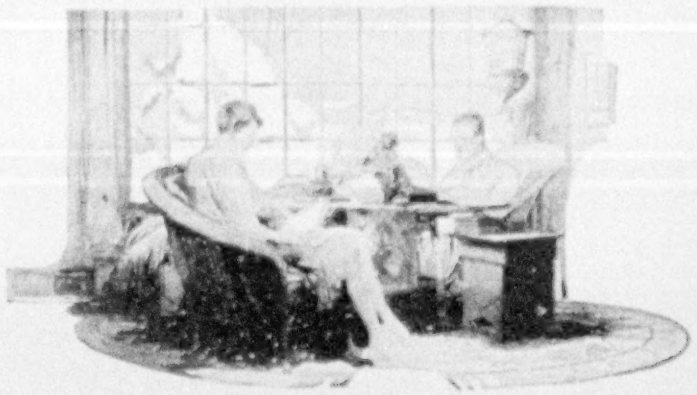
OIL HEAT—AS BENEVOLENT AS SUNSHINE



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Special 25-Day All-Expense Cruises

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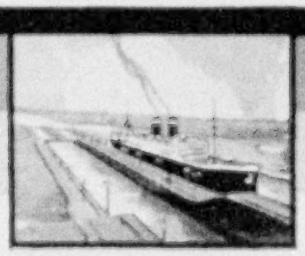

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Go via the wonderful Panama Canal, engineering marvel of the world. See sparkling Havana, Caribbean Metropolis, en route. Cool breezes all the way.

Reduced summer rates NOW. Fortnightly sailings. Largest, fastest ships. Ask for literature describing special round trips One Way Water—One Way Rail.

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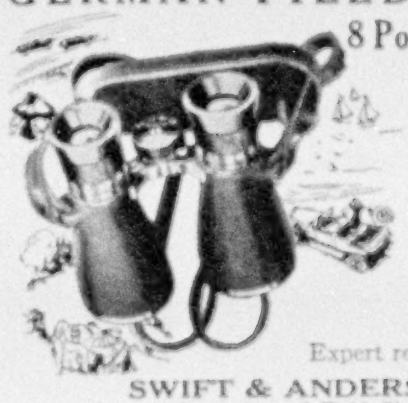

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$9.85 Postpaid

The ideal all 'round sport's glass at your dealer or shipped promptly on receipt of check, money order or C. O. D. for $9.85.

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Expert repairs on glasses. Write

SWIFT & ANDERSON, Inc.
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Hensoldt catalog showing improved Dialyt Prism Binoculars and Rifle Telescopes sent on request.

SOUTH AMERICA

WINTER SEASON, 1929

SEVENTH ANNUAL CONDUCTED TOUR, including the Inca Ruins, via Panama Canal, Peru, Chile, trip across the Andes, Argentina, Uruguay, Brazil and West Indies, leaving January 17th—January 31st for those omitting the Inca section—returning April 10th.

Rates: $1950.00 and up—All Outside Rooms

SPECIAL RANCHERS' AND FARMERS' TOUR, leaving December 29th, returning March 4th. Unique opportunity to combine the pleasure of a delightful trip with a visit to the greatest agricultural and cattle countries of the world.

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Independent All-Inclusive Tours arranged at any time to South America, West Indies, Europe and Around the World.

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MALTED NUTS

Delicious Vegetable Milk

Serve Malted Nuts as a hot or cold beverage —or sprinkle on fruits or cereals.

Put the Smile of Health on his Face

LET abounding health paint roses in your children's cheeks. Give them a food they will enjoy. One rich in the precious food elements so vital to vigorous growth.

Malted Nuts makes a captivating food drink. It is delicious any way you serve it. As a topping for desserts and salads. With fruits, or sprinkled over cereals.

Its abundance of easily digested food iron, lime and vitamins make it nourishing and sustaining. Most infants thrive on it. To many nursing mothers it has helped to bring an abundance of health-giving milk. It has put firm flesh on lean persons. Even hard workers have found that it gives them renewed energy.

Those who do not like milk, or with whom it does not agree, relish Malted Nuts which contains all the food elements of cow's milk.

Malted Nuts is on sale at your local Health Food Center together with all the other wholesome foods in the Battle Creek Sanitarium Health Food line.

Write today for a copy of "*Healthful Living*" —a 60-page booklet written by the leading nutrition expert. Outlines with recipes the Battle Creek Diet System. Sent free upon request.

THE BATTLE CREEK FOOD COMPANY
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WORLD-FAMOUS STEAMERS
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See the HUDSON *by Daylight*

A matchless trip of world-wide fame which you can enjoy without added expense on your journey to or from New York. Easy change from train to boat or boat to train at Albany, enabling you to include the journey in any summer itinerary.

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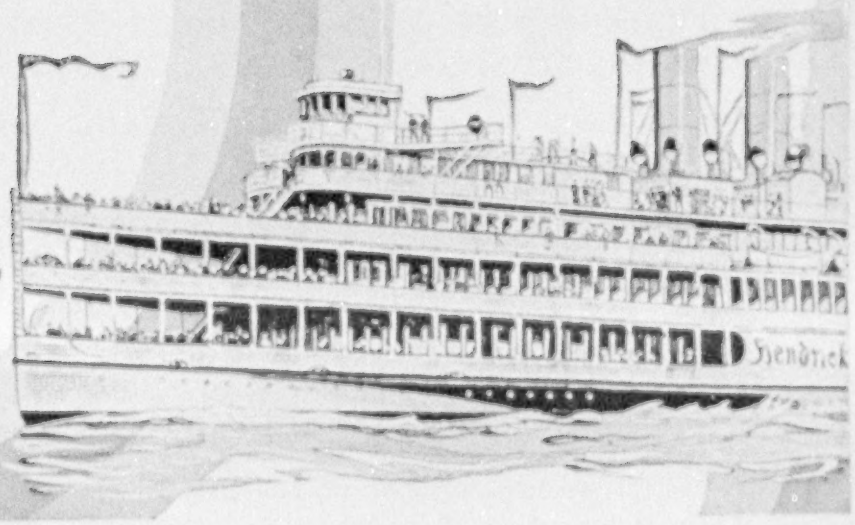

Hudson River Day Line
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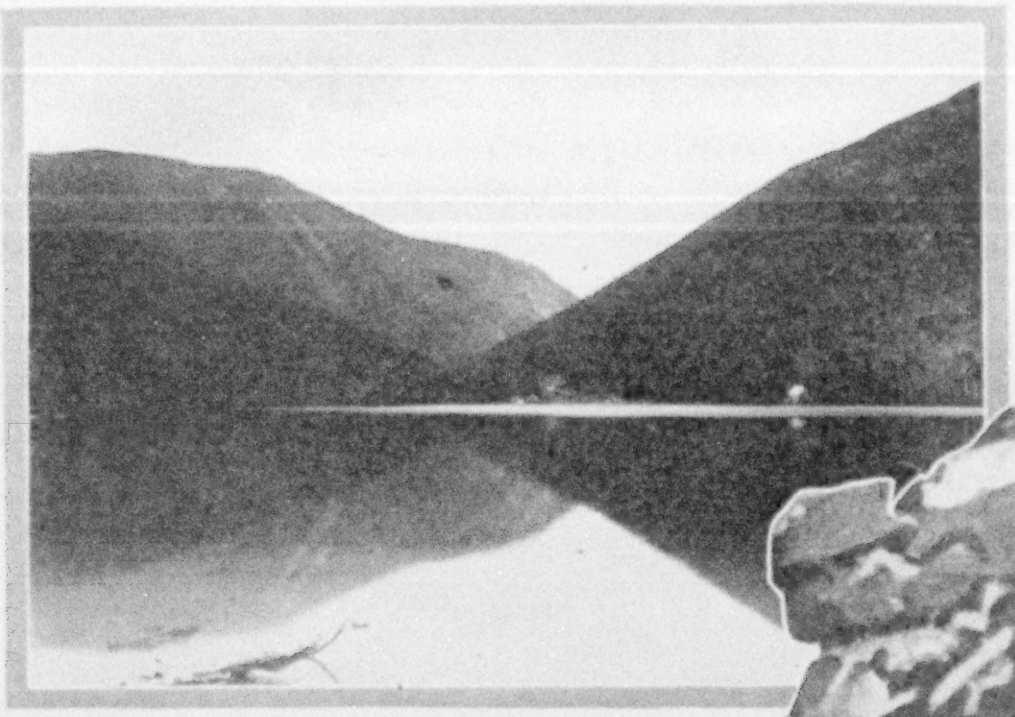
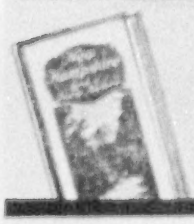


Echo Lake near the Old Man of the Mountains

Eastward Ho!

New Hampshire! historic state of scenic beauty, enshrined in the hearts of Americans! Sheer heights, rugged grandeur, island-studded lakes, and snow-capped ranges. Peaceful, rolling farm lands and smooth, ocean beaches. Golf, hunting, fishing, and air that inspires—with its crisp tang and zest that build new health in this year-round playground of the nation.

NEW HAMPSHIRE



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DIRT PER MINUTE

The accurate measure of electric cleaner efficiency is *dirt per minute*

The ONE THING *to look for* in an Electric Cleaner
POSITIVE AGITATION

YOU need not know the technical details of electric cleaners, mechanical differences between them, in order to choose rightly.

There is only one thing you need know about electric cleaners—which one removes the most *dirt per minute*.

Find *that* one and you have found the one which will give you the *fastest, easiest, deepest* cleaning of your rugs.

Repeated tests under actual home conditions have demonstrated the Hoover's ability to remove the most *dirt per minute*. This is due to "Positive Agitation"—a remarkable, exclusive principle of deep-beating which combines with sweeping and suction to give the Hoover an unrivaled cleaning efficiency. To "Positive Agitation," too, are due the nap straightening and color restoring which preserve the original beauty of the Hoover-cleaned rug.

We shall be glad to demonstrate in your own home that the Hoover can remove more *dirt per minute*. Because d. p. m. represents the real gauge of electric cleaner capacity, you should see this demonstration before buying any electric cleaner. Phone your local Hoover Dealer.

Cash prices: Model 700 Hoover, $75; Model 543 Hoover, $59.50. Dusting tools, $12.50. Floor Polisher, $7.50. Easy payments if desired. Only $6.25 down. Hoover dealers will make you an allowance on your old electric cleaner.

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NORTH CANTON, OHIO

The oldest and largest maker of electric cleaners
The Hoover is also made in Canada, at Hamilton, Ontario

The HOOVER

It BEATS.... as it Sweeps as it Cleans

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

Ciné-Kodak

Simplest of all Home Movie Cameras

Home movies with the Ciné-Kodak are as easy to take as simple snapshots. You press the button, we do the rest.

A movie of your children's progress, taken by yourself.

A "Living Diary" *of your Children!*

Take Ten Feet of Ciné-Kodak Film Each Month and Watch Them Grow Up Before You on the Silver Screen.

THERE they are, just as they used to be. The first announcement flashes on the screen . . . "Arthur T. Makes His Movie Debut." "When Barbara Was Six Weeks Old" . . . or "The Twins—Aged Four Months" . . . and then, as you catch your breath with the thrill of it, their childhood passes in review.

Twelve months flash by in a few minutes, and soon you've seen a bird's eye view of the whole wonderful period, infancy to adolescence.

* * *

You have probably heard of the Ciné-Kodak before this. With this remarkably simple camera, home movies are as easy to take as snapshots.

What a simple matter to take ten feet of your youngsters every month. Later to splice these ten-foot strips together in what becomes a serial picture of their early years. And, finally, to run this film through the Kodascope, the wonderful Eastman home projector, and see their month-by-month development revealed in a few thrilling moments.

This opportunity, which Home Movies present to every parent, is worth looking into at once. Just drop in on your Ciné-Kodak dealer and ask him to tell you something about the Ciné-Kodak and the Kodascope. And, in the meantime, send in the coupon for the interesting booklet that we'll gladly send you.

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